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# IowaMedicine

January 1990

Journal of the Iowa Medical Society



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# IowaMedicine

Volume 80 Number 1

Journal of the Iowa Medical Society

January 1990

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# In This Issue

## Departments

- 7 President's Privilege
- 33 The Editor Comments
- 34 CME Notebook
- 35 Recent Books
- 37 Biomedical Ethics
- 38 Practice Management
- 41 Iowa Department of Public Health
- 43 About Iowa Physicians
- 50 In the Public Interest

## Special Articles

- 8 **Restraining Costs, Improving Quality**  
*The secretary for the U.S. Department of Health and Human Services would like to see several cost and quality initiatives become a reality in the 1990s.*  
**Louis Sullivan, M.D.**
- 10 **Health Care in the 1990s: Rationing or Rationalization?**  
*We are already rationing care, but we are doing it in irrational ways, says Rep. Tauke.*  
**U.S. Congressman Tom Tauke**
- 12 **Iowa's Economy in the Coming Decade**  
*The gradual greying of Iowans and demographical factors will have a definite impact on health care in the 1990s.*  
**Harvey Siegelman**
- 14 **Forecasts from Iowa Health Care Experts**  
*Six guest authors gaze into a crystal ball and predict key developments ahead in care of the elderly, substance abuse treatment, organized medicine, hospitals and rural health care.*  
**Ian Smith, M.D., Bruce Trimble, M.D., James Stiles, M.D., Paul Romans, John Rhodes, Jr., M.D., Jon Jensen**
- 21 **The Art of Medicine**  
*Observations of an insightful Iowa physician made over 20 years ago are still pertinent today.*  
**James Bishop, M.D.**

(Contents continued next page)

## About the Cover

This month's frigid cover photograph was taken by Joe Reid, a Des Moines resident and amateur photographer. The photo depicts Mr. Reid's back door as it looked on a blustery January day. Mr. Reid, a retired Equitable Life employee, first picked up a camera when he was a teenager. His favorite subjects are "kids and beautiful landscapes."



## Scientific Articles

This issue contains the first in a series of articles on biomedical ethics written by Robert Weir, Ph.D., director of biomedical ethics for the U. of I. College of Medicine (see page 37).

### 25 Cancer: The Next Ten Years

*Experts are certain the riddle of cancer will eventually be solved, but the solution may elude us into the next century.*

**Robert Shreck, M.D.**

### 27 How Will We Treat Our Number One Killer?

*The diagnosis, treatment and prevention of heart disease may be revolutionized during the coming decade.*

**David Chappell, M.D., Michael Kienzle, M.D.,  
Michael Winniford, M.D., David Skorton,  
M.D., Douglas Behrendt, M.D.**

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## Donald F. Rodawig, M.D.

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President's Privilege



# Advice for a New Generation

I HAVE HEARD MY COLLEAGUES say "I would never advise my children to go into medicine." I admit this thought has crossed my mind; but as my career winds down, a different mentality has surfaced. I am proud and happy I have practiced family medicine in rural Iowa.

I was privileged to practice with my father for 15 years before he retired. He taught me many things that are not learned in medical school. When I started in practice very few controls and intrusions from government were evident. I just cared for patients. When someone was in financial need I took care of them and didn't worry about it. I might call the county overseer of the poor and say "Mrs. Ayres, Joe needs his appendix out and doesn't have any money." She would say "Don, take care of it and send us the bill." University Hospitals took some of the elective cases. Patient care was hard work, but simpler.

We had a 22-bed hospital in an old mansion. We did our own fluroscopy and sent our x-rays to Fort Dodge for interpretation. We sent our EKGs to Sioux City. Our anesthesia was drop ether by nurses. We did not have endotracheal anesthesia, CT, MRI or nuclear scans. Things were simple yet our patients got along surprisingly well. Our major concern was the Blue Cross and Shield relative value scale setting physician fees.

In the mid-60s the government decided to help us care for our patients through

Medicare, Medicaid and Title XIX. Now everyone intrudes into patient care. All these factors complicate patient care, but I admit modern technology has allowed us to do exciting things in medicine. I feel we are on the brink of even greater accomplishments.

All the scrutiny by the Foundation, government and third party payors, lawyers and the public has complicated our medical lives, but I feel I practice better medicine because of these changes. Our young people will also adapt. They are beginning practice with regulation which will become more encompassing.

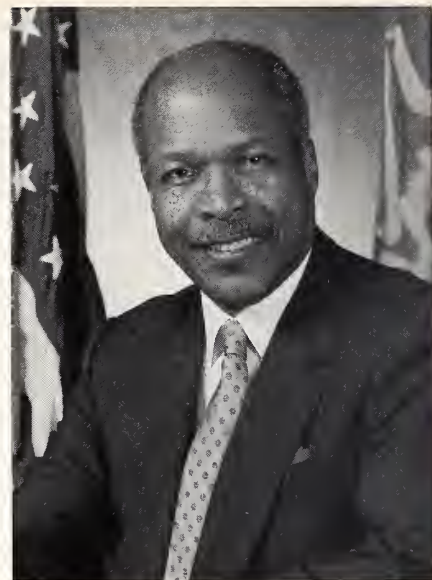
In spite of the drastic changes, I love patient care in rural Iowa. Patients still are grateful and respect their doctor. In small towns everyone knows each other. We have good churches, schools, hospitals and a low crime rate. I have given up OB and surgery. Consultants come to rural communities. Emergency room coverage is available so I don't have to work 7 days a week. I make more money than most of my patients. Yes, I'd recommend medicine to my children.

*Donald F Rodawig MD*

Donald F. Rodawig, M.D.  
President

# Restraining Costs, Improving Quality

LOUIS SULLIVAN, M.D.  
Washington, D.C.



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*Special guest author Louis Sullivan, M.D., secretary of Health and Human Services, discusses that department's long range goals.*

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**T**HIS FALL, I WAS HONORED to deliver the Alan Gregg Lecture at the annual meeting of the Association of American Medical Colleges. In this special issue of *IOWA MEDICINE*, I will share briefly some of those thoughts with you — particularly as they refer to effectiveness and affordability of medical interventions.

As a young man entering medicine, Alan Gregg was one of my heroes. He was well known for his work in Boston, where I spent much of my professional career. Dr. Gregg was a brilliant graduate of the Harvard Medical School, an outstanding resident at the Massachusetts General Hospital and later the visionary director for the medical sciences at the Rockefeller Foundation.

Throughout his life, Dr. Gregg maintained that our personal characteristics and morals, and the values we hold as a society, are equally important. He was just as con-

cerned about our ethical and moral fiber as a people, as he was about the latest developments in medical science. He understood that if our growth in knowledge is not commensurate with our ability to absorb and correctly use that information, we reach a point of stasis.

We all know the high cost of health care makes access impossible for millions of Americans and extremely difficult for millions more. In 1987, health care cost the American people more than \$500 billion — 11% of our Gross National Product. Some estimate these costs will be over \$600 billion in 1989.

Predictions by the Health Care Financing Administration indicate unless something is done, health care costs could reach over \$1.5 trillion by the year 2000. There is evidence that up to 25% of what we spend for health care does not buy needed care or provide an increased measure of quality.

## *Practice Patterns*

A major project we have undertaken at The Department of Health and Human Services (HHS) is an effectiveness initiative to find out what works in the practice of medicine. Faced with evidence of enormous variations in medical practice patterns — often without any apparent medical justification —

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Dr. Sullivan is a hematologist and was the founder and first president of the Morehouse School of Medicine in Atlanta, Georgia.



we determined it is essential to create a systematic base of information about the quality, effectiveness and appropriateness of medical procedures.

The effectiveness initiative has as its central goals:

- Improving the quality of health care through the provision of effective and appropriate care;
- Reducing ineffective and unnecessary medical treatments;
- Enhancing the scientific basis of medicine through development and application of technology to the questions of medical treatment effectiveness; and
- Providing information to patients, physicians and others on appropriateness, risks and benefits of medical intervention.

The objective is to develop effective, efficient and economical diagnosis and treatment. The initiative will build a "library of understanding" about medical practices. The overriding goal is to assure patients are not at risk from unnecessary treatment or ineffective procedures. Reducing the number of unnecessary procedures will also hold down the nation's health bill.

### ***Comprehensive Review Of Health Financing***

On another, but complementary track at HHS, I have directed a comprehensive review of health financing. If America's health care system is to live up to public expectations, our financing system needs a top-to-bottom review. If we are to maintain the best in American medical care, improve access to that care in an equitable way and keep costs in line, we must look at fundamental aspects for change.

A third major initiative we have undertaken at HHS is strengthening our biomedical research enterprise. The noted physician and author Dr. Lewis Thomas observed that scientific research is an important means for addressing the questions of access, quality of care and costs. He wrote:

"It is when physicians are bogged down by their incomplete technologies, by the innumerable things they are obliged to do in medicine when they lack a clear understanding of disease mechanisms, that the deficien-

cies of the health care system are most conspicuous. If I were a policy-maker, interested in saving money for health care over the long haul, I would regard it as an act of

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*'The overriding goal is to assure patients are not at risk from unnecessary treatment or ineffective procedures. Reducing the number of unnecessary procedures will also hold down the nation's health bill.'*

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high prudence to give high priority to a lot of basic research in biological science."

I agree with this view. Enhancing our nation's biomedical research is one of my highest priorities.

The Biomedical Research Initiative we have undertaken in the Public Health Service is designed to complement and help facilitate the painstaking research of many scientists the world over. We plan to:

- Strengthen the basic research foundation in biomedical and behavioral sciences;
- Assure the scientific integrity of research;
- Educate the public about the importance of animal research and assure animal welfare;
- Promote scientific literacy and improve biomedical science education; and
- Improve the intramural research programs of the Public Health Service.

Specifically, this initiative will help us channel new resources and personnel to strengthen our capabilities in the biomedical, behavioral and epidemiological sciences. We will work to improve facilities, as well as recruitment and retention of personnel.

Much is at stake in our consideration of the questions of health care access, affordability and quality. Our continued capacity to conquer disease and vanquish ignorance turns on our ability to preserve the integrity of the scientific process. So does our capacity to remain the economic and technological leader of the free world.

# Health Care in the 1990s: Rationing or Rationalization?

U.S. CONGRESSMAN TOM TAUKE  
Iowa's Second District

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*A member of the U.S. Bipartisan Commission on Comprehensive Health Care and the Subcommittee on Health and the Environment, Rep. Tauke discusses the federal government's role in health care in the coming decade.*

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AMERICA'S HEALTH CARE POLICY is likely to be the top social issue on the congressional agenda in the 1990s. Mounting concern over the number of Americans without health insurance coverage and the cost of health care is fueling interest in comprehensive reform.

As a nation, we have embraced access to basic health care services as a fundamental right. We do not believe access to health care or the quality of that care should be rationed by income. Yet, our current system does not realize this ideal and Congress is frustrated with piecemeal reforms which have not restrained costs or ensured access to care.

Rapidly escalating health care costs for the public and private sectors are putting insurance beyond the reach of many Americans and limiting the ability of federal programs to substantially expand access to care.

Thirty-one million Americans have no health insurance and an equal or greater number have inadequate insurance. Pressure to restrain costs has forced us to face the problem of the uninsured. As the public and private sectors have replaced cost-based reimbursement systems with capitated systems and aggressive cost-cutting measures, it is far more difficult for providers to absorb or shift indigent care costs.

## *We Are Rationing*

Under our current system, we are in effect rationing care but we are rationing it in irrational ways. We have not ensured that a pregnant woman has access to prenatal care at an approximate cost of \$400, but we spend hundreds of thousands of dollars to care for her premature and possibly permanently disabled child. We do not ensure that infants and children receive routine preventive care, but we pay hundreds of thousands of dollars for acute care.

We provide those in good jobs which carry health insurance benefits with a healthy tax subsidy — exclusion from employee income of the value of the benefits and the deduction the employer takes for providing the plan. However, we offer little if any federal assistance to the employed uninsured, the unincorporated small business person who wants to provide coverage for his small work force or the unemployed with incomes above the poverty line.

What is needed is a rethinking of the federal government's role in the nation's health care system. Should that role be to determine which services will and will not



be covered, purchase services on behalf of individuals, control cost and ensure quality through regulation — a system similar to Canada's? Or should that role be to empower the individual — through tax credits and direct subsidies — to make informed health care choices?

Under the first alternative, we may ensure universal entitlement if not universal access. Costs may be restrained, but in the long run, they will be restrained at the cost of quality, innovation and progress.

The second alternative would be more difficult to implement. It would involve a reordering of our tax subsidies. It would require development of our ability to assess

*'What is needed is a rethinking of the federal government's role in the nation's health care system.'*

quality and compare providers and plans. It would mean placing trust in the individual to choose wisely when given the necessary information about plan and provider costs, quality and extent of coverage. In my opinion, it also holds the greatest promise for helping us achieve — through competition, information and freedom of choice — that balance we seek between cost, quality and access.

### ***Bipartisan Involvement***

Last year, in response to growing pressure for reform, Congress created the U.S. Bipartisan Commission on Comprehensive Health Care, or the "Pepper Commission." I serve on this commission, which is charged with reporting to Congress this March on a plan for closing gaps in our nation's health care system.

The second alternative is clearly the "road less traveled" in the thinking of the majority on the commission and on the health subcommittees of Congress. However, a few of us are working to change this direction and point Congress down the road less traveled toward the goal of universal access.

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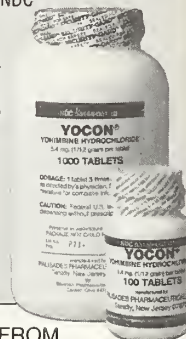
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#### **References:**

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2. Goodman, Gilman — The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

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# Iowa's Economy in The Coming Decade

HARVEY SIEGELMAN

Des Moines, Iowa

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*What factors will affect Iowa's economy and population base during the coming decade? The author, State Economist with the Iowa Department of Economic Development, analyzes coming trends and their implications for health care delivery.*

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ECONOMISTS have identified 2 sets of forces that are having an impact on Iowa's growth path. The first set is long-term in duration, broad-based in scope and evolutionary in nature. We call these secular trends.

These trends are generally predictable and slow-moving. Examples include the general aging of our population, substitution of capital equipment for labor in the factories and on the farms and increased competition for markets caused by the industrialization of the Third-World.

While secular forces tend to follow a straight line path, cyclical trends are somewhat less predictable, their timing and intensity generally less certain. Regular, yet erratic, weather patterns provoke cycle patterns in farm income. The drought of 1988 and the near-drought of 1989 are examples of these forces. The effect on farm in-

come caused a cycle in the sale of farm implements, driving many other sectors of the Iowa economy.

The least predictable of the economic forces that will affect our economy in the 1990s are what statisticians call "stochastic events." These are the periodic natural or political shocks that disrupt an economy without warning. The Japanese political scandals are examples. Japanese investors recently moved capital into U.S. securities as a safe-haven amid their domestic political instability. The effect was to drive up the value of the dollar. Iowa was affected because many of our manufacturing firms are driven by their export markets. Another example is the outbreak of the British-Argentine war over the Falkland Islands which caused a ripple in the grain markets a few years ago.

## *Applying the Equation*

[Economy of the 1990s] = [Economies of the 1980s and Earlier Periods] times [Secular Trends] and [Cyclical Patterns] interrupted by [Unpredictable Stochastic Events].

[Population Size and Mix] are a function of [the Economy]

The farm crisis of the early 1980s is a permanent part of our past. Just as the depression of the 30s molded the attitudes of an entire generation, the economy of the early-1980s has left lasting scars. From 1980 to 1987 205,000 persons — most of them in the early family-building age groups — left Iowa. To use a farm analogy, we lost a large



herd, much of it breeder stock. The impact will be felt on our birth rates and age distribution for decades to come.

The losses were felt more profoundly in our smallest rural communities. This shock exacerbated a secular trend away from labor-intensive farming evident for decades. Irrespective of the farm crisis, we have seen an average of 2,000 fewer farmers each year for decades. Our average farm size is about 320 acres. As a result of consolidation, average farm size has been growing by about 20 acres per year. Farming has become more efficient. We no longer need as many farmers.

During the early 1980s an inflated dollar closed many export markets to farmers. High interest rates reduced farm profits, deflated land values and destroyed the economies of rural towns. More than ever, Iowans needed growth in city jobs. Unfortunately, factories in the cities were also idled by many of the same forces affecting agriculture.

### *The Turnaround*

Since late 1986, things have been different. The dollar has become more favorable to exports and is predicted to become more so in the next several years. Interest rates — while still substantially above 1970s levels — are not the double-digit levels of the early-1980s. Our economy is on the mend and tax revenues are available to fund capital improvements again. Employers are hiring and shortages exist in some occupations and localities. Unfortunately, not all areas of the state have enjoyed this boom, particularly the smallest rural communities.

In the past we could assume a rising tide would lift all ships, this is not necessarily so today. Rural communities which will be economically viable in the next century are those that make fundamental changes in the 1990s. They will be the communities that develop an industrial base independent of agriculture. They cannot survive on their farm service store or their grain elevator.

Neither can rural communities survive trading dollars with one another. They will have to expand their industry beyond the grocery store or the local hospital. A declining tax base will probably make support of the hospital very difficult. The *surviving* rural communities will be a part of a vibrant re-

gion. They will grow new businesses that are unaffected by the forces that drive agriculture. Such accomplishments will require community leadership, a clear acceptance of the realities and a viable plan.

### *Demographics of Change*

It should be no surprise that, on average, we will be older in the 1990s. The average age of an Iowan in 1980 was 30 years. By 1990 it increased to 33 years. By the end of the decade it will be 37. What makes us unique is that we are aging much faster than the rest of the nation. Part of the reason can be traced to the economic shock and the out-migration caused by the farm recession.

In 1990 there will be an estimated 427,000 Iowans over the age of 65 — up 38,000 since 1980. We will have another 10,000 by the year 2000. The 75+ group accounted for 6% of our 1980 population and will account for over 8% by the year 2000.

Older people are healthier now, take better care of themselves and will continue to be productive in the future if we change our work rules to accommodate them. They will become a more valued resource in a decade of tight labor supplies.

An older population will also affect what we make and sell. We will need more leisure activities, convenience products and personal and homemaker services.

Accommodating the older worker in a late-in-life new career will not be an easy task. It will require greater flexibility in work hours and assignments. For Iowa businesses this challenge will occur many years before it occurs elsewhere, thanks to the economic shocks of the 1980s; but great challenges also bring great opportunities.

### *Applying Trends*

How will these trends impact the health care professional in Iowa? For those who live and work in rural communities the scars of the farm recession are apparent. The rural doctor or health care provider is probably a leader in her/his community development efforts. For those associated with rural health care institutions the future may mean regionalization of services. It may also mean a redefined market aimed more at accommodating the needs of the well-elderly. One thing is certain — the coming decade will be one of challenges and opportunities.



# Forecasts from Iowa Health Care Experts

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*How will the delivery of health care change in the coming decade? Six experts discuss crucial issues we may face in the 1990s.*

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## Good News About Aging

IAN SMITH, M.D.

Iowa City, Iowa

*When I get older, losing my hair many years from now, will you still be sending me a Valentine, birthday greeting, bottle of wine. . . .*

— Lennon and McCartney

**T**HE GOOD NEWS ABOUT AGING is that some of the bad news is wrong. What we believe we know about aging is often based on cross-sectional research; that is, the study of 20 people at age 20, 20 at age 40, 20 at age 60 and 20 at age 80. The *correct* way to study aging is to observe 20 people at age 20 and the *same* 20 people at advancing ages. This takes 1 to 3 investigators' lifetimes, but it is being done. We now know there are widely differing effects of aging in the population.

In the Geriatric Evaluation Clinic we saw a 92-year-old with a sprained ankle. I said "but surely there is something else bothering you." "Well, now that you mention it," she replied, "there is a CPA in

town who keeps calling me and telling me that now I'm over 90 perhaps he should manage my 17 apartments. I told him 'Hell no — I've done all right for the last 70 years. I think I have a few good years to go yet!' " My theory is that if one or 2 elderly last well into their 90s, the rest of us must be sick.

About 14% of Iowans are 65 or older and about 1.5% are 85 or older. In very round terms, this means 450,000 of our 3 million or so are age 65 and older and 45,000 85 or older. Iowa is the leading state for people 85 and older and this segment of the population is our fastest growing. Only 5% of the total elderly are in nursing homes but 20% of the very old are there.

The average age at death for women is 79 and for men is 71. In 2010 these figures will probably be 81 and 72; in Iowa they may well be 84 and 76. Does this mean we will be increasing our nursing home population dramatically? Fortunately, the answer is probably no. Research at Duke University shows in a very large number of Medicaid-enrolled elderly, over the same 20-year period 6 measures of dependency have been reduced an average of 15%.

We can already appreciate the improvement in health of the elderly. If measured by self or physician-assessment, 68% of persons age 69-84 are in good health and 79% of those age 85 and older enjoy good health. I believe we can do better in the future.

Lifestyle is the answer; but lifestyle has to change when aging begins, at age 30. A healthy lifestyle includes exercise, good nutrition, no smoking, reduced alcohol intake, normal weight and 7 hours of sleep

each night. You *know* all the answers but do you and your patients accept this as good preventive medicine or do you want a magic vaccine?

In the years 1933-1966, mortality in those over 85 declined 10% but in 1966 to 1977 it declined 26%. Deaths from stroke have declined 35% in the past 10 years, from heart disease by 25% and from cancer by 3%. Most of our figures are from death certificates, which are notoriously unreliable. Autopsy figures show we die from cancer, heart disease, pneumonia and septicemia and pulmonary emboli in that order. Most are preventable and treatable. Elderly people need our medical help to improve function and the enjoyment of life for as long as possible. They don't fear death. They fear disability and nursing home confinement.

A last illustration came to hand recently in the *Lancet*. If you take elderly diabetics

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*'The elderly don't fear death.  
They fear disability and nursing  
home confinement.'*

**Ian Smith, M.D.**  
**Professor of Internal Medicine**  
**U of I College of Medicine**

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followed carefully by blood sugar levels and not by the old crude way by urine sugars, you can divide them into well-controlled and poorly controlled groups, then subdivide them into very well-controlled and very poorly controlled groups. The very poorly controlled in 10 years develop 30% albuminuria and 30% develop eye complications. Patients in the very well-controlled group develop none of these complications.

Why don't all the wonderful advancements in elderly care happen right now? The elderly take 50-100% longer to work-up and educate than do middle aged adults. Does your legislator know this? Will compensation for the care of the sick elderly match the time spent?

We also need more education of physicians about the elderly. Lots of new things have been discovered. The federally funded Iowa Geriatric Education Center in Iowa City

is educating administrators, physicians, social workers, other health care providers and journalists. Has your county medical society discussed geriatrics recently?

Please don't forget optimists really do live longer than pessimists.

## ***Organized Medicine in the Coming Decade***

BRUCE TRIMBLE, M.D.

Mason City, Iowa

**T**HE LARGEST ISSUE FACING medicine in the 1990s will be the continued rise in health care costs. As we face this issue, we will need to address society's concern that dollars are wasted on poor quality or inappropriate services.

IMS involvement with this issue will include ongoing discussion with the Iowa Health Data Commission regarding collection and interpretation of data on health care costs and outcomes, probable development of a small-area analysis project and possible collaboration with specialty groups to develop and disseminate practice guidelines.

We will also need to educate policy makers and the public on the real reasons for rising costs: the aging population, burgeoning and increasingly expensive technology, unhealthy life-styles, the current liability system and intrusive and expanding regulatory requirements and administrative structures. Beyond these topics, we will likely be involved in broad-based discussion, as in Oregon, on which health care services should be top priority. We will also be involved in policy discussion on uninsured and underinsured.

In these difficult discussions, the IMS will work with a variety of groups and in a variety of forums, serving as an expert resource and as a spokesman for our patients' interests and our own. This continuing involvement will be somewhat new for us, as will the fact that final decisions will be made by others. Media attention will be pervasive and not always to our liking and our mo-

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tives and authority will not always receive the respect we feel is deserved. Although this work will be difficult, it is very important and I am confident we will do it well.

We will also be involved in similar discussions on the problems of rural health care. These discussions will include the EMS system, linkages between small towns and larger urban health care systems, the role of PAs and the possibility of "limited-service" hospitals. The core issue, however, is reimbursement. We must educate and lobby to change the current disincentives to enter primary care and to practice in rural areas. The IMS has a role to play in this issue, but many of the relevant decisions will be made at the national level.

Dealing with reimbursement and many other issues will require coordination with and support of strong AMA efforts. AMA

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*'On the state level, we will continue to deal with the 'turf' issues of professional privileges.'*

**Bruce Trimble, M.D.**  
**Chairman, IMS Board of Trustees**

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membership by Iowa physicians is already at a high level, and in the near future we may again consider unified IMS-AMA membership.

On the state level, we will continue to deal with the "turf" issues of professional privileges. At some point we'll again face a malpractice insurance crisis which will require and allow (the legislature will be receptive only if there is a crisis) a new effort to change current liability laws.

We can be proud of our positive public-health legislative agenda for 1990, as well as the continuing public health and welfare work carried out, usually unpublicized, by many IMS committees. This work will continue in the 1990s, especially in AIDS and environmental health.

Physicians will increasingly realize the importance of a strong and unified presentation of our views, and efforts will continue to link IMS and specialty society policy development and public affairs activities. In

addition to current informal coordination and specialty society representation on the IMS Legislative Committee, there may be direct specialty society representation in the IMS House of Delegates.

A new IMS building became necessary because of the growth of IPMIT and IMS Services. Both organizations will continue to grow over the next decade.

## **'Horrendous' Problem Will Continue**

JAMES STILES, M.D.

Cedar Rapids, Iowa

UNFORTUNATELY, I FORESEE no abatement of problems with alcohol and drug abuse during the 1990s. These highly addictive substances have been unnecessarily glamorized by the entertainment media and drugs of abuse represent a highly profitable industry to the purveyors.

We have all read of the astronomical sums being spent on drugs across the country. I am sure each of us has had a personal experience with someone who has a substance abuse problem. Solutions are difficult if not impossible to find. For over 20 years, I have worked in drug treatment, prevention and education and I am not satisfied with the overall results so far. We read of cities which are unable to provide money for their park systems because of the funds needed to combat drug abuse. The problem has even permeated our grade schools.

Currently, there is lay pressure to decriminalize drugs. I feel this is not the answer. We have enough problems with our legal drugs — alcohol and tobacco. I can see absolutely no reason to make all drugs readily available. Some of those who are requesting legalization are doing so with good intentions, but without adequate information on the problems related to addiction.

During the coming decade, I believe our drug abuse problem will worsen and we will see an increase in designer drugs. These drugs are easily produced in relatively inexpensive laboratories and, unlike heroin and



cocaine, can be produced locally and distributed easily.

I feel the only way to reduce drug and alcohol abuse is to give our citizens an alternative to getting high. This would most logically be a family based program starting

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*'I believe our drug abuse problem will worsen and we will see an increase in designer drugs.'*

**James Stiles, M.D.**  
**Chairman, IMS Committee on**  
**Alcoholism and Drug Abuse**

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from the age of first socialization. It would be structured to supply individuals with a sense of community and camaraderie. In this way, drug abuse would be deglamorized and people could find all the support they needed to refrain from entering the world of substance abuse. This program would be supported by the authorities, encouraged by the schools and reinforced by physicians. However, it would remain basically a family responsibility.

Only with the resurgence of the strong family unit do we have any chance of bringing this horrendous problem under control.

## **Improving Nursing Home Care**

PAUL ROMANS

Des Moines, Iowa

**H**EALTH CARE FOR IOWA'S increasing number of senior citizens will change considerably during the 1990s as a result of legislation passed by Congress which mandates specific nursing home reform provisions.

Federal nursing home reform legislation contained in the Omnibus Budget Reconciliation Act of 1987 (OBRA) represents the most comprehensive legislation mandate affecting the delivery of long-term care serv-

ices since the passage of the original Medicare and Medicaid program in 1965. The legislation will require significant changes in Iowa nursing home operations and staffing and the delivery of patient care services in many states.

The goal of the legislation is meeting the increasing needs of nursing home residents, with emphasis on improving quality assurance programs in long-term care. As a result, the law contains many quality assurance provisions required to be implemented over the next several years. Two recent national studies provided the basis for much of the nursing home reform legislation: a 1986 study by the Institute of Medicine's Committee on Nursing Home Regulation and a 1987 report by the General Accounting Office on enforcement of federal and state standards in nursing homes.

While it is expected this legislation will have a positive impact on quality of care in nursing homes, the new requirements are expected to create additional costs for many nursing homes and increase Medicaid program expenditures and state spending for mental health services.

The legislation focuses on improving the quality of nursing home services through better staffing, nurse's aide training, care planning and resident assessments. The legislation also revises facility administrator standards and resident rights and contains other provisions which will have significant impact on management and operation decisions in nursing homes. The ultimate thrust of this legislation is to build on the Institute of Medicine recommendations and eliminate the historically arbitrary distinction between skilled nursing facility and intermediate care facility programs, thus improving the overall quality of nursing home services. The expected date for eliminating overall skill nursing facility and intermediate care facility distinction is October 1, 1990.

To meet the new nursing facility requirements, the 432 certified long-term health care facilities in Iowa will have to increase the size of their staffs considerably. Many provisions contained in the legislation are designed to improve the provision of nursing home services, strengthen protection of resident rights and enhance the over-

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all level of facility administration. One of the significant provisions for nursing home services requires that all skilled nursing facilities and intermediate care facilities provide 24-hour care by licensed nurses 7 days a week,

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*'The legislation will require significant changes in Iowa nursing home operations and staffing.'*

**Paul Romans**  
**Executive Vice President**  
**Iowa Health Care Association**

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with at least one registered nurse (RN) employed in the facility 8 hours a day, 7 days a week.

Another provision mandates that care of nursing home residents enhance their quality of life. Nursing homes must provide these services in accordance with a written plan of care developed in consultation with the resident and a multi-disciplinary team coordinated by a nurse. The plan of care must be periodically reviewed and revised based upon individual resident assessment. The medical, nursing and psychosocial services needs of each resident, as well as a description of how these needs will be met, must be described.

Nursing homes are also required to maintain a quality assessment and assurance committee which will meet quarterly to develop and implement appropriate plans of action to correct and identify quality assessment or assurance deficiencies.

The legislation contains numerous requirements designed to promote individual rights of the residents, including requirements for nursing homes to establish identical policies and practices regarding transfer, discharge and covered services for all individuals, regardless of payment source.

In conjunction with requirements for mandatory staffing, training, facility administration, resident rights and overall elimination of the SNF and ICF distinction, OBRA 87 also requires all states to implement pre-admission screening programs. The intent behind prescreening all nursing home admissions (including private pay residents) is

to determine appropriate nursing home placement and to screen out mentally ill (MI) and mentally retarded (MR) individuals who do not need nursing home care. Nursing homes must not admit anyone who is mentally ill or mentally retarded unless that person specifically requires nursing services. Active treatment is required for MI or MR patients who also need nursing home services.

Implementing these changes will take the cooperative effort of all Iowa's health care providers.

## ***Search Will Continue for Rural Physicians***

JOHN RHODES, JR., M.D.

Pocahontas, Iowa

**T**HE MOST IMPORTANT ISSUE which will continue to affect the delivery of health care in rural Iowa is recruiting and retaining an adequate supply of health care providers.

Over 170 Iowa communities are actively recruiting family physicians. Over 20% of Iowa's family practice physicians are 60 years old or older. The average age of retirement continues to decline. Younger physicians are leaving Iowa due to heavy case loads and long work hours. In 1988, only one-half of family physicians completing residencies remained in Iowa to practice.

Specialization continues to reduce the number of primary care physicians. Although there may seem to be adequate numbers of physicians, maldistribution makes rural supplies critically low. Medicare reimbursement rates for rural physicians are among the lowest in the country. This is especially important because the elderly constitute about one half of a rural physician's practice.

According to the Iowa Hospital Association, there will continue to be a shortage of registered nurses and licensed practical nurses in rural areas. Other health care professionals including physical therapists, occupational therapists, pharmacists, medical technologists and radiology technologists



will also be in short supply. Maldistribution is also an important factor in these shortages in rural areas.

Iowa's ability to supply its rural citizens with adequate facilities for health care services is vital. Because of the decline of the rural economy, communities are less able to support health services. Third party payers reimburse rural hospitals and skilled nursing facilities at a substantially lower rate than urban facilities. This has forced closings and continues to jeopardize operation of facilities. Adequate and well trained ambulance services and an emergency 911 system are of utmost importance in a rural setting.

Access to perinatal care is a key issue in rural Iowa. There has been a decline in the number of physicians practicing obstetrics, largely due to increases in liability insurance premiums. For many rural physicians, obstetrics is not economically viable. When pregnant women must seek prenatal care and delivery outside their communities, they

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*'Although there may seem to be adequate numbers of physicians, maldistribution makes rural supplies critically low.'*

**John Rhodes, Jr., M.D.**  
**Member, Governor's Task Force**  
**on Rural Health**

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are more likely to experience adverse pregnancy outcomes. These include a greater incidence of prematurity, low birthweight babies and higher infant mortality.

Other important issues in rural health care in the 1990s will be providing for the elderly, the handicapped and the uninsured. The elderly and the handicapped may require transportation to and from health care facilities. These services are often not available in rural areas. Rural areas have no indigent care facilities for the uninsured and the underinsured.

The availability of health care providers, facilities and perinatal services as well as the special needs of the elderly, handicapped and uninsured are rural health care issues Iowans will have to face in the coming decade.

## **New Challenges Foreseen For Iowa Hospitals**

JON JENSEN

Des Moines, Iowa

**T**HE 1980S BROUGHT DRAMATIC change to Iowa's 125 community hospitals; the 1990s promise new and more difficult challenges. Factors that will affect Iowa's health care delivery system in the 1990s include:

- *Closures* — Inadequate and inequitable Medicare payment to Iowa hospitals is causing severe financial strain. It is time for Medicare-Medicaid to increase hospital payments to cover the cost of care for the elderly and disabled or for government to let the American people know their budget decisions will necessitate reducing access.

In 1988, Iowa's hospital contractual adjustments to Medicare (that is, payments less than charges) totaled \$203.4 million; adjustments to Medicaid totaled \$43.1 million. This occurred despite the fact Iowa's hospital charges are among the lowest in the nation. It would be unrealistic to assume we will not see some hospital closures in Iowa — with the accompanying limitation of access to health care services.

In lieu of closures, we may see some small rural hospitals convert to different status. The MAF, or medical assistance facility, model has been promoted by many. Developed in 1974 by the Department of Health, Education and Welfare, the MAF was first known as a "limited service rural hospital." The system has yet to be federally approved in Montana and has yet to be tested. We have no idea how it will impact quality, physician access or financial viability.

- *Expansion of Networking* — As we enter the 1990s, we observe increasing networking, clustering or affiliation and formation of consortiums among Iowa's smaller hospitals to assure their survival and enhance availability of services. Clusters of smaller hospitals are forming management affiliations with large secondary and tertiary care hospitals.

Currently 74 hospitals in Iowa are involved in some form of networking or affilia-

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tion. That trend will expand in the next decade to better share technology (mobile CTs, MRIs, mammographies, etc.) and staffing.

● *Hospitals as the Hub of Community Health Care* — Currently there are 56 Iowa hospitals involved in home health programs. Over 30 have wellness, fitness and health education programs. That number will grow

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*'It would be unrealistic to assume we will not see some hospital closures in Iowa — with the accompanying limitation of access to health care services.'*

**Jon Jensen, Executive Vice President  
Iowa Hospital Association**

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significantly during the 1990s as hospitals seek to be the center of health services and disease prevention.

We will see more hospital involvement in health promotion, nutrition, physical fitness, behavior modification, alcohol and substance abuse and programs promoting independence and vitality for senior citizens. We will see increasing hospital involvement in adult care programs, personal emergency response systems, meals on wheels, house-keeping and transportation services, housing and residential care facilities and hospice programs.

● *Explosion of Outpatient Services* — There has been a significant trend in the late 1980s for delivery of care in an outpatient setting. The 1990s will see the core of the hospital becoming more of an inpatient intensive care area with the majority of services delivered on an ambulatory basis.

A crisis will develop in the 1990s in outpatient emergency departments. Fiscal and regulatory relief will be required to curb problems which have been identified in 41 states and are beginning to be seen in Iowa. Emergency room backlogs raise havoc with the hospital's total patient management program and inhibit access to care. Emergency rooms are in danger of becoming a dumping ground for the uninsured and a further drain on the hospital's already inadequate financial resources.

● *Long-Term Care and Programs for the Elderly* — Iowa ranks fourth in the U.S. in the percentage of population over 65 and first in the percentage of population over 85. Iowa hospitals receive over 9% of their revenues from long-term care programs and that percentage will increase. Congressional action increasing the eligibility of hospitals up to 100 beds to participate in the swing bed program will be beneficial in this area. A majority of Iowa's SNF units are currently operated by hospitals; that should continue as hospitals seek to address the needs of the increasing elderly population.

● *Medical Technology* — Costs of bringing new medical technology, surgical procedures and pharmaceuticals to Iowa hospitals will be significant in the coming years. This will be one factor influencing predicted increase in networking and affiliations. The explosion of new technology and advance of modern medicine will force consideration of health care rationing as we struggle to balance our increasing ability to prolong life with our decreasing financial resources.

Although challenges to Iowa hospitals will be many in the 1990s, the mission of hospitals remains the same — to ensure the viability of Iowa hospitals as institutions in order to meet and care for people in Iowa's inner cities, suburbs and rural areas.

## Help Wanted

We are seeking spouses of Iowa physicians to join a vital, progressive, accomplished group — the Iowa Medical Society Auxiliary.

**QUALIFICATIONS AND SKILLS:** Enthusiasm and involvement

**BENEFITS:** Too numerous to list

Send your dues (\$30 payable to IMS Auxiliary) TODAY to your county auxiliary treasurer or district councilor. In return, you will become a person who is well-informed about Iowa's medical issues.

For further information on the IMS Auxiliary, contact Sandy Nichols, 515/223-1401 or toll free 1/800-747-3070.

**We need you!**

# The Art of Medicine

JAMES F. BISHOP, M.D.

Davenport, Iowa

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***This excerpted version of a paper first read January 28, 1969 before 'The Contemporary Club' in Davenport focuses on issues still timely over 20 years later. The Contemporary Club, a literary group involving people in many different professions, is still in existence.***

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*Author's Note: In compiling this summary of the original essay, the author has preserved the words "he" and "him" in reference to the physician. Women have joined the profession in increasing numbers since the original writing and their presence is warmly acknowledged. The author humbly begs their indulgence and willingness to be included in the generic terms "he" and "him."*

**A** VERY LONG TIME AGO, somewhere in the shrouded past, man attained the ability to reason and behave rationally. Bigotry, intolerance and the mushroom cloud testify that he has not always done so but at least he learned how.

As man clustered together in groups, whether as tribes or villages, certain among his number set themselves up as experts in matters of illness and injury. Apparently theirs was a complicated craft consisting of fearsome mask, nauseous potions and dramatic outcries and gyrations.

The poor patients doubtless fled or recovered in self-defense to avoid being poisoned by the potions or frightened to death by the performance.

From this beginning, medicine has marched with the rest of civilization, raising a great dust sometimes, often stumbling uncertainly but always trying, within the limits of human fallibility, to make the lot of the ill and injured a little better.

Medicine readily divides itself into 2 parts, the art and the science. The science is largely concerned with those things we can do, those things we will some day be able to do and those things we can never do. Having thus cavalierly dismissed several centuries of research and clinical experience, this discourse will confront the task of examining the art of medicine.

## ***Medicine is Compassion***

The art of medicine is so simple and so complex it defies definition. It is compassion and the urge to help. It is recognition of the patient as a person rather than a skinful of organs. It is knowing that the physician does not treat disease but rather ministers to a fellow human who happens to have a disease, or is afraid he has. It is knowing the ill and the injured are dependent, often outraged at their misfortune and frightened by the unknown which confronts them. It is the acceptance of the Hippocratic Oath with all its admonishments to do no harm. The Oath of Hippocrates may not always, in human frailty, be strictly observed but, like the Golden Rule, is always there to strive for.

As he practices his art, the physician encounters the full gamut of human emotions.

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Dr. Bishop is a retired surgeon and a past president of the IMS.



One of the most common is fear, or its less dramatic cousin, anxiety. These are healthy and necessary emotions for, without them, all life, except plants, would long since have disappeared. Awareness of peril and attempts to evade it are necessary measures of self-preservation.

Uncontrolled, anxiety and fear become crippling and destructive. It would be simpler if every individual reacted with the same amount of anxiety to a given situation but this is not so. One may deal calmly with a crisis which reduces his neighbor to helpless fear. Each of us has a limit of emotional endurance and, so long as that limit is not breached, we persevere fairly well. Unfortunately, the ability to bear a burden varies greatly from one to another.

The person who is ill or injured is, at best, rather anxious or, at worst, abjectly fearful. He is confronted by the unknown, a threat to his comfort, his health and even his life. He looks to his physician for relief — not only from his pain but also from his fear. The apprehensive patient just does not do as well as does he who is calm and confident. It is part of medicine's art that the physician shall inspire confidence and allay the fear of the unknown or, as circumstances may demand, moderate the fear of the known.

The physician must deal with the medico-legal concerns which require that the patient be fully informed of all aspects of his predicament. Concern for the patient's welfare may cause the physician to skirt, to some degree, the rigidity of the informed consent requirement. To recount to an already apprehensive patient all the possible mishaps that might befall him during or after an operation could reduce him to abject terror. This, in itself, might interfere with his physical ability to cope with his surgery or even cause him to refuse it altogether. Fortunately, most of the complications do not occur anyway.

One of the physician's obligations is to try to extricate people from predicaments of their own making. These often seem to result from an abundant supply of certain hormones. Early in my career, during my family practice days, I was confronted by 5 people with a staggering problem. The 45-year-old woman was the mother of the 17-year-old

girl whose pregnancy was contributed by the 30-year-old man who was the husband of the 25-year-old woman and the father of the 5-year-old girl. Fortunately, perhaps, the Army's call to active duty just prior to World War II allowed me to evade the responsibility of searching through the art of medicine to find a solution to this one.

## *Death is the Enemy*

Man is a mortal creature and must some day come to the end of his earthly journey. Probably nowhere else is the skillful exercise of the physician's art more deeply needed than when he stands at the side of his patient whose life has almost run its course. When death comes suddenly, through violence or overwhelming disease, there usually is little time to offer solace to the patient. The physician can then only comfort, by his presence and with his medicines, those who are left behind. He feels, as do all other humans at such times, a desolate sense of inadequacy.

Often, death comes as a friend. To the physician, though, death is usually the ultimate enemy, an enemy which is losing an increasing number of battles but always wins the war.

Recognition that death is inevitable although not imminent bursts open a Pandora's box of questions. Shall the patient be told his disease is incurable and his plight hopeless? How much of his science shall the physician use to prolong a life? Will the exercise of his science prolong living or prolong dying?

Here, the patient and all those people and things which concern him must be measured. The head of a family must have time to order his affairs to best serve those he will leave behind. This is equally true for one whose business or community responsibilities are of vital concern to others. Such an individual has a right to know of his perilous state and should be fully informed. He needs to know, too, that he will not be abandoned and that his physician will be steadfast at his side.

Religious, moral and legal law are strong and clear in their admonition. Thou shalt not cause death but when, by doing nothing, shalt thou let die? It is the deepest impulse of the physician to fend off as



strongly as he can those forces which will end life. How long shall he hold his patient's hand trying to draw him back from the abyss — and when shall he let go? For the patient who is terminal and whose plight is obviously hopeless, the decision is not so difficult. The oxygen, the fluids, the artificial respirations only prolong dying. The suffering, hopelessly ill patient should not be denied the surcease of death.

The science of medicine is constantly at hand to guide and advise where public health is at stake as in water and food purity, mass immunizations and all the other endeavors necessary for the good health of the population as a whole. The art of medicine must sometimes be broader, too, than dedication to just one individual. It must offer calm counsel on matters of concern to people in the aggregate. Some attitudes and beliefs, widely and sincerely held, may need to be examined under a new light. Then again, something brand new may suddenly burst upon us awing and puzzling us as its many implications begin to appear.

The pure science of these things causes no controversy for scientific fact, like other truth is, of itself, neither good nor bad. It becomes one or the other only through the eyes of the beholder. It is when these matters become entwined with economics, religion and the law that emotions are aroused and the issues become clouded.

### *Controversial Issues*

Two of these areas, one old and one new, into which medicine must move with cool and dispassionate counsel are abortion and organ transplants.

The scientific aspect of an abortion is rather simple and, when performed in a proper surgical environment, is a safe and relatively minor operation. However, there the simplicity ends since any discussion of abortion immediately arouses religious, moral and legal controversy. Opposition to abortion arises out of concern for the new developing life which some moral and religious tenets hold to be inviolable. Medicine feels devotion, too, to the yet unborn and strives to nurture its development and arrival into a warm and desirable existence. It does, though, question whether the rights of the developing individual override the rights of all others.

Legislative bodies acknowledge the right to live of the mother-to-be and permit abortion when her life is at stake. Conception resulting from rape or incest, monstrous deformities developing after the mother's infection by German measles, children born one after the other at a rate beyond the family's ability to care and provide for them require society's careful consideration.

The so-called age of organ transplants arrived in our midst with all the dignity of campaign for a new detergent. The first organ involved, the heart, has a most vital function but has a sentimental appeal far beyond that of most other body structures. Seldom does a love-stricken swain lay his kidneys at the feet of his lady and seldom is his liver broken if she refuses him.

Some human organs, such as those involved in reproduction, are not vital to survival. Others, namely kidneys and lungs, are paired and life with only one is rather commonplace. It is when we enter the realm of the indispensable organ that questions begin to arise from all sides. To be of any value to the recipient, the transplanted organ must be alive, hence quite recently removed from the donor. It must, at the same time, be made certain the donor can no longer use the organ.

It is likely most donors will be healthy but irreparably injured. It is usually possible to know, long before the heart ceases, recovery from an injury is impossible.

It is part of medicine's art that the physician be alert for possible donors. He is likely to be close by when the moment for decision arises and he can approach, with tact and sympathy, the heart-broken family. Those early minutes are vital in the events which make transplant possible. The list of people who need transplants is far longer than the list of donors.

So much for a glance at the art of medicine. It is all this and very much more. It is concerned with abortions and transplants and conveying medical information to the public and fighting quackery and many other things. Its ultimate fulfillment lies in its rapport with the individual patient, one at a time, in office, hospital or home. It is the attempt to understand and cope with the most complicated and cantankerous contraption in the world, the human being.



**MERCY HOSPITAL MEDICAL CENTER  
DES MOINES, IOWA  
PRESENTS**

# **"NERVE BLOCK CENTER: PAIN UPDATE '90"**

**SATURDAY, MARCH 10, 1990**

THIS 6½-HOUR SEMINAR WILL IDENTIFY, DEFINE AND PROVIDE SPECIFIC INFORMATION RELATING TO VARIOUS MODALITIES APPROPRIATE TO ADULT AND PEDIATRIC PAIN MANAGEMENT:

**ADULT CANCER PAIN MANAGEMENT  
PEDIATRIC CANCER PAIN MANAGEMENT  
PEDIATRIC NON-MALIGNANT PAIN MANAGEMENT  
PSYCHOLOGICAL ASSESSMENTS/INTERVENTIONS  
EPIDURAL INFUSION SYSTEMS  
PAIN PROGRAMS: A MERCY UPDATE  
PAIN MANAGEMENT: FUTURE NEEDS  
PANEL DISCUSSION**

**REGISTRATION: 7:30 a.m.  
PROGRAM: 8:30 a.m. to 4:00 p.m.**

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# Cancer: The Next Ten Years

ROBERT SHRECK, M.D.

Des Moines, Iowa

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*Although progress on the cancer front sometimes seems slow, the cancer landscape in the 1990s will be dramatically different.*

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**A**MONG THE MORE THAN 100 distinct diseases known as "cancer" there are some success stories. During the 1980s it became unusual to see a patient die of cancer of the testicle, certain subsets of childhood leukemia, malignant trophoblastic disease or Hodgkins disease. These and a few other cancers are regularly curable even in an advanced state with demonstrable distant metastases. These treatment advances occur in young patients and the good outcomes give us hope for success in other cancers, but they are rare diseases. Together they account for under 2% of Iowa cancer diagnoses.

## *Treating Advanced Cancer*

Common cancers — those of large bowel, lung, breast and prostate — encompass more than 70% of all cancer cases in Iowa.

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Dr. Shreck practices oncology/hematology in Des Moines.

They are still incurable in advanced stages and a large percentage of cases are advanced when diagnosed. Treating patients in advanced stages of these and other cancers has been an exercise in palliation, not cure. The goal of treatment has been relief of problems caused by the cancer and prolongation of life. Significant resources will be expanded in the future to gain these benefits for patients.

We can anticipate that advances in palliative efforts with novel irradiation techniques, new chemotherapy drugs and new combinations of old drugs will continue. The "area under the curve" will increase, but in the absence of a true breakthrough the eventual outcome will remain the same.

## *Adjuvant Treatment*

In the early 1980s we learned that chemotherapy following surgery for early breast cancer prolonged survival. During the last decade similar results were obtained for small numbers of patients with small-cell anaplastic cancer of the lung and larger fractions of patients with ovarian cancer, large-cell lymphoma and several childhood tumors.

In a recent series of meticulous clinical research protocols spearheaded by the Mayo Clinic and largely carried out by community oncologists, it was demonstrated that stage C colon cancer (positive nodes) patients benefited from various combinations of chemotherapy, radiation therapy and a veterinary deworming pill. This study will have wide application in the immediate future.

THE IOWA MEDICAL FOUNDATION HAS DESIGNATED THIS ARTICLE AS THE HENRY ALBERT SCIENTIFIC PRESENTATION FOR JANUARY 1990



A similar advance is needed in non-small-cell lung cancer and there are suggestions this may be on the horizon. Much clinical cancer research in the 1990s will focus on adjuvant research — identifying the subsets of patients at risk and developing more effective, less toxic and more economical treatment.

### ***Detection and Diagnosis***

To treat in an adjuvant context, a relatively early diagnosis must be made. The primary care physician plays a key role in identifying patients at risk and screening for diagnosis. This is a complex task involving training, patient and physician motivation, social priority and cost. In the 1990s we should see effective tools of screening and diagnosis recognized and placed into wide use.

Mammography is an example. It has revealed many early breast cancers and saved many lives. The cost has plummeted. However, it was only in the last year screening mammography became a health benefit in most insurance plans and most women at risk have not had the test. This will change in the 1990s.

We should see development of tumor markers for most cancers that will enable early diagnosis. The proper integration of these markers (clinical, genetic, roentgenologic, biochemical, serological, etc.) into primary medicine will receive social and financial support unheard-of to date. The thoughtful primary care physician will assure her/his role as the most important member of the health care team and will be rewarded as never before.

The diffusion of imaging technology into the smallest hospitals in Iowa and the growing skill of Iowa radiologists and pathologists in obtaining and interpreting needle biopsy specimens will lower the cost and morbidity of diagnosis. This will allow us to obtain information on a wider spectrum of patients with greater acceptance and cooperation.

### ***Cancer Prevention***

To cure a 50-year-old of acute leukemia is exciting and within the province of an oncologist. To effectively educate an adolescent regarding the dangers of tobacco use is infinitely more important. One-third of all cancers are attributed to cigarette smoking — nearly all lung cancers, most head, neck and esophagus and half of bladder tumors. The current backlog of pack-years is job security for this gen-

eration of oncologists, pulmonologists and cardiologists, but this is the last generation of smokers. Social pressure will accelerate in the 1990s and by the end of the decade smoking will be an anomaly in all but the elderly.

A decade later the incidence of tobacco-related cancers will plummet; lung cancer will eventually become the rare disease it was in the opening decades of this century. The improvement in life-expectancy will bring new challenges in social policy on retirement, Social Security and cross-generational economics.

As the 1990s progress we should learn what dietary factors cause large bowel cancer, the most common of all cancers. Current studies should also clarify the role of diet in breast cancer. This will be the beginning of a precipitous decline in colon cancer and a decline of unknown proportions in breast cancer.

### ***Economics and Delivery***

In 1980 there were 9 medical oncologists in 5 Iowa cities and 4 full-time radiation therapists in 3 cities excluding Iowa City. The Oncology Nursing Society was a fledgling organization with only a few members. Ten years later there are 25 medical oncologists in 10 cities and 18 radiation oncologists in 14 cities.

Today, more than 40 smaller communities host monthly or weekly oncology outreach clinics, usually in their local hospital. Staffed by oncologists and nurses who travel from larger cities, these clinics offer cancer treatment in the patients' hometowns. Benefits to the patient, family, hospital, community physician and oncologist that evolve from these clinics are obvious. The oncology clinic system in Iowa is likely unparalleled in the country.

This de-centralization of knowledge and services will accelerate in the future.

### ***Elusive Answers***

There is no reason to think the riddle of cancer prevention and treatment will not ultimately be solved, but many answers will elude us into the next century. Therapy will become more effective and demand for services will increase from an aging patient population that is increasingly sophisticated about medical matters. Where we will stand in the year 2000 is not known, but many small and large changes across a broad front are sure to remake our oncology world.

# How Will We Treat Our Number One Killer?

DAVID CHAPPELL, M.D.

MICHAEL KIENZLE, M.D.

MICHAEL WINNIFORD, M.D.

DAVID SKORTON, M.D.

DOUGLAS BEHRENDT, M.D.

Iowa City, Iowa

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*The authors discuss the many advances expected during the coming decade in diagnosis, treatment and prevention of heart disease.*

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**T**HOUGH IT REMAINS THE NUMBER ONE killer of Americans, major advances in the diagnosis, treatment and prevention of heart disease are anticipated for the 1990s.

## **Coronary Artery Occlusion**

*Clot Lysis — Thrombolytic Therapy.* Over the next 10 years, thrombolytic therapy for acute myocardial infarction will improve in several ways. New thrombolytic agents will be developed which are more effective at rapidly dissolving blood clots. This may include new genetically engineered forms of tissue plasminogen activator (TPA) which are more clot-selective. The combined use of 2 or more

thrombolytic agents will prove more effective than a single agent alone and will become more widely used.

There will be more widespread use of intravenous thrombolytic therapy by ambulance personnel "in the field," allowing earlier initiation of reperfusion therapy. New antiplatelet agents such as antiplatelet antibodies will be developed and will be more effective than current agents (e.g., aspirin and heparin) in preventing reocclusion of the coronary artery after successful thrombolysis. Currently, reocclusion occurs in 10-15% of patients following successful thrombolytic therapy and negates the beneficial effect of treatment.

Finally, the role of adjunct therapy, such as coronary angioplasty and coronary artery bypass, will be more clearly defined.

*Mechanical Recanalization of Occluded Coronaries.* There will continue to be rapid growth of new technologies in the field of interventional cardiology. Laser angioplasty systems will be markedly improved and will play an important role in treatment of patients with coronary disease who cannot be effectively treated with conventional balloon angioplasty. Roles of other devices, such as atherectomy catheters and intracoronary stents, will be more clearly defined by future clinical trials. These mechanical devices will not replace conventional balloon angioplasty, but will prove more effective or safer in selected patients.

Overall, advances in interventional cardiology will enable us to improve coronary blood flow without surgery in a greater number of patients.

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The authors are associated with the departments of internal medicine and surgery at the University of Iowa.

(Continued next page)



*Prevention of Restenosis With Drugs.* Restenosis following successful angioplasty currently occurs in about 30% of patients. Even with the more widespread use of laser angioplasty, atherectomy devices and other new technologies, restenosis will continue to be a problem over the next 10 years. However, pharmacologic agents will be discovered which successfully lower the rate of restenosis.

*Coronary Artery Bypass Operations.* The types of operations performed for coronary artery atherosclerosis will undoubtedly evolve over the next 10 years. Reoperations for saphenous vein occlusion or for progression of mature atherosclerosis will be increasingly common. Intraoperative balloon or laser angioplasty will be developed as adjunctive procedures in patients not ideally suited to conventional bypasses.

## ***Preventing Sudden Death***

*Choosing the Right Antiarrhythmic Therapy.* One major public health problem confronting cardiovascular clinicians and researchers is sudden cardiac death that occurs after acute myocardial infarction (MI). These deaths occur in patients with few symptoms. Using current non-invasive techniques such as ambulatory ECG monitoring and cardiac imaging techniques, post-MI patients at increased risk of sudden death can be identified.

The 1990s will bring studies to determine if invasive cardiac electrophysiology (EP) studies are an effective means to choose the antiarrhythmic therapy to treat these high risk patients following myocardial infarction. Cardiac electrophysiologists throughout Iowa have joined researchers at the University of Iowa College of Medicine and UI Hospitals and Clinics in a clinical protocol to carry out such a study. This unique collaborative effort will continue well into the 1990s.

*Antiarrhythmic Devices.* Patients who have survived a "sudden death" episode or have medically refractory life-threatening ventricular arrhythmias continue to be a problem, since available antiarrhythmic drugs have limitations including lack of efficacy or serious side effects. Therapy for these patients in the 1990s will be increasingly tied to emerging technologies in antitachycardia devices. Future devices will evolve from current antitachycardia pacing and implantable cardioverter-defibrillator prototypes.

Multifunction antitachycardia devices will be studied in the early 1990s and ultimately become available capable of terminating ventricular tachycardia with pacing, performing low energy cardioversion from an endocardial catheter and providing back up defibrillation and standby bradycardia pacing. With the increased sophistication of these devices, very specialized EP evaluations and cardiac surgical procedures will be required.

*Ablation of Arrhythmogenic Tissue.* There will be a continuing interest in the 1990s in providing corrective nonsurgical ablative therapy for a number of types of SVT and VT. These procedures will be performed with special catheters and new energy sources like radio frequency power that will provide curative therapy for problems which once required intensive medical therapy or cardiac surgery.

Advances in this area will be closely linked to improving technologies and continuing clinical and basic research. There are signs of early interest in ablating arrhythmogenic tissue by delivering agents differentially active in arrhythmogenic foci via the coronary arteries. These studies are in a very early stage; these may or may not prove feasible for widespread clinical application.

The role of endocardial resection in the treatment of medically refractory arrhythmias will be better defined. Intraoperative computer-guided mapping techniques are being developed which may improve surgical results.

## ***Prevention and Reversal***

*Reduction of Risk Factors.* Lowering high cholesterol levels, exercise, lowering high blood pressure and avoiding smoking play an important role in preventing heart disease.

In the area of managing lipids, diet therapy will continue to be significant in the 1990s. Predictive markers for heart disease will improve; we'll be able to narrow down the population in which physicians will need to target restrictive diets. A low cholesterol, low saturated fat diet will continue to play a crucial role in reducing Low Density Lipoproteins. More aggressive treatment of cholesterol disorders are in the future. Already researchers have shown that not only can fixed chronic atherosclerotic plaques be stabilized, but regression can actually occur with aggressive treatments. The 1990s should find that ag-

gressive treatment can reverse fixed, severe atherosclerotic plaque in large groups of patients.

*Drug therapy* will become more common and will continue to be required for patients who don't respond to diet modifications. Lovastatin is the most potent drug to date for lowering LDL cholesterol. Alternative drugs may be available in future years for people who have adverse reactions.

Omega-3 fatty acids will continue to be investigated in the 1990s and they may be prescribed for many patients.

*Gene Therapy.* Gene therapy could be a real option in the 1990s. Researchers are currently using animal models to find genes that help regulate LDL or HDL levels. Initially, gene therapy will be limited to people with inherited defects of lipoprotein metabolism like familial hypercholesterolemia which occurs in one in 500. For those rare homozygotes with cholesterol levels of up to 1,000, liver transplantation is the only option now, yet these patients may be good candidates for gene therapy.

### ***Antihypertensive Medication***

Compounds with fewer side effects and new modalities beyond the calcium channel blockers, adrenergic blockers and the converting enzyme inhibitors will be developed. These may include agents that block the new potent endothelial vasoconstrictor endothelin and agents that block receptors for vascular growth factors which would slow vascular hypertrophy.

### ***Stabilization of Endothelial Function***

Damage to the endothelium is recognized as an important factor in the pathogenesis of atherosclerosis, vascular occlusion, vascular growth and hypertrophy and hypertension. In the 1990s we shall learn more about these paracrine and autocrine functions of endothelium and the chemical mediators of these functions. Compounds to regulate these processes will be developed and subjected to clinical trials.

### ***New Imaging Methods***

*Positron Emission Tomography.* We anticipate more sensitive methods for diagnosis of coronary disease by assessing segmental myocardial contraction, regional myocardial flow and myocardial metabolism using positron

emission tomography. Current use of exercise ECG, thallium perfusion scans and isotope ventriculograms does not permit differentiation of ischemic but viable myocardium from irreversibly injured tissue. The combination of information on myocardial blood flow and uptake of fuel substrates appears to offer an excellent method of identifying viable muscle tissue with positron emission tomography.

*Magnetic Resonance Methods.* Magnetic resonance imaging and spectroscopy also promises to supply unique information on cardiac anatomy, function, and metabolism in a non-invasive fashion. In particular, magnetic resonance spectroscopy should permit insights into alterations in high-energy phosphate metabolism and intermediary metabolism in patients suffering acute ischemia.

*Intavascular Ultrasound.* Assessment of coronary arterial anatomy using angiography identifies luminal narrowing, but not the presence of diffuse atherosclerotic arterial wall thickening. The presence and nature of such thickening may be clarified using new generation, catheter-mounted, high-frequency ultrasound probes. Simultaneous assessment of blood velocity with intravascular Doppler will permit concurrent assessment of coronary anatomy and flow reserve.

### ***Cardiovascular Surgery***

*Cardiac Transplantation.* Revolutionary advances in the use of agents that block the rejection process are already in progress. These will improve long-term survival and reduce complications, making transplantation an even more attractive alternative for the patient with end stage ischemic heart disease, cardiomyopathy, or congenital heart disease.

A major limitation will continue to be a shortage of donors. Hopefully, increased awareness among both the general public and health care professionals will help remedy the situation. Also, current laboratory work in cross-species transplantation may become a clinical reality.

*Coronary Artery Bypass in the Elderly.* By the year 2000 the number of people over age 75 is expected to increase by 30% and their general state of health will be better. Many surgical procedures now considered contraindicated because of age will become much more common not only as a good alternative to non-surgical care for medical reasons but possibly



also for fiscal reasons when one considers cost of repeated hospitalization for a worsening clinical condition.

*Surgery for Valvular Heart Disease.* Continued improvements in methods for preserving heart valves for transplantation will be made. This will result in expansion of programs for replacing diseased valves with human grafts rather than mechanical prostheses, thus sparing patients the risk of complications associated with prosthetic valves.

### ***Massive Public Education***

The 1990s will see a much more sophisticated public embracing preventive measures such as smoking bans; knowledgeable selection of food products with low total fat, saturated fat, and cholesterol content; moderate salt intake; and avoidance of beverages with high alcoholic content.

### ***Treatment of Congenital Heart Disease***

Increasingly sophisticated non-invasive diagnostic technology will allow more accurate and earlier diagnosis, even of complex defects in utero. Operations for these defects will be planned and carried out at an earlier age and

they will be more often completely corrective rather than palliative. Cardiac transplantation will be carried out more often if expected improvements in immunosuppression and donor availability occur. There will be increased understanding of the causes of these anomalies at the subcellular level, which may have an impact in preventing their occurrence.

### **What's Your Line?**

Do you or a colleague have a hobby or interest you'd like to share with other *IOWA MEDICINE* readers? Whatever the talent (an accomplished artist or musician, a craftsman, an international traveller . . .), we'd like to hear about it! Call Christine Clark at IMS Headquarters, 223-1401 or 1-800-747-3070.

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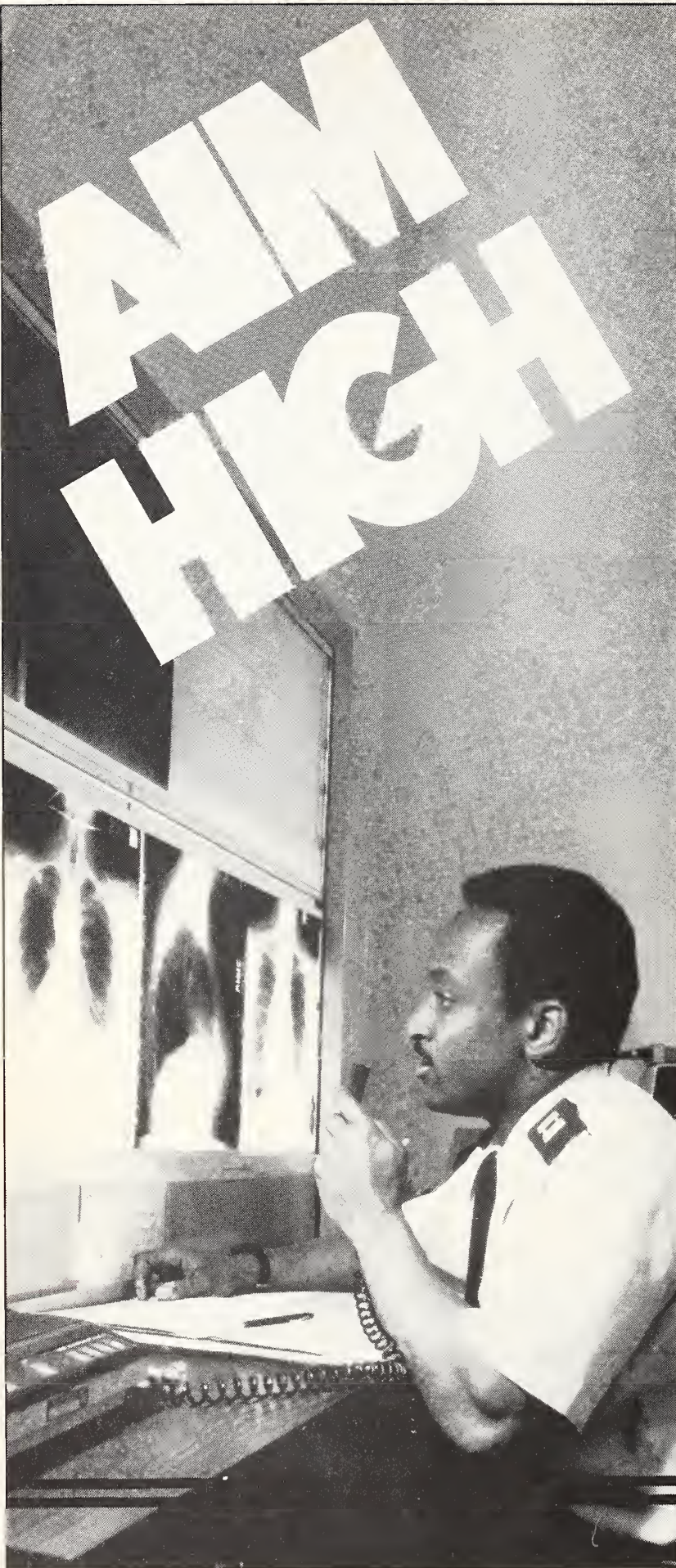
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## Marion E. Alberts, M.D.

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The Editor Comments



# Challenge for the Next Decade

**A**S WE ENTER A NEW YEAR we also enter a new decade — the last decade of this century. There is so much to reflect upon and much to look toward. The 1980s have been eventful in medicine. We have experienced many innovations and exciting challenges. The climate of medical practice is much different than in previous decades. We are challenged not only by medical innovations but also by principles of practice management.

A mere 10 years of time have introduced us to so many practice management changes. Never has the relationship with patients been so diverse. The one-to-one relationships of the past have been interrupted by third-party "intruders." Government and private insuring agencies have complicated the picture with diverse rules and regulations. With this avalanche of constraints there is an increasing amount of consternation and some near fatal unhappiness by some practitioners. Some have changed their style of practice; other have quit.

Let us not be defeated by changes of the past. It would be more appropriate to look forward to the challenges and the attendant reward of the next decade. All is not bleak; we are not on the brink of defeat in the manner of our practice management. Our leadership in organized medicine has not overlooked the dilemmas that confront us.

A number of diseases remain a challenge. Cancer and heart disease remain in the forefront but AIDS has created one of the greatest problems for the future. The increasing incidence of AIDS along with the immense research efforts provide a challenge of tremendous proportion. Since June 1, 1981 there have been 104,210 total known cases and 61,655 deaths from AIDS. Historically, medicine has faced great challenges and conquered them. So it will be with AIDS, cancer and heart disease.

Medicine, as a profession concerned with public welfare, must become involved with social problems. We must be as concerned with control of illicit drug use as other societal groups. We must face the dilemmas of the homeless and the unemployed. We cannot be aloof to the needs of society in general. The involved citizen, regardless of social or professional status, must be part of the societies' responsibilities. Working together with government, social agencies and our fellow citizens will reflect favorably upon our profession. Too frequently we become so engrossed in our practices, or worse yet our own selfish materialistic endeavors, that we ignore our other responsibilities. Medical professionals have so much to offer and we must take time to offer our expertise in matters medical and otherwise. — M.E.A.



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## Richard M. Caplan, M.D.

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CME Notebook



# Education in the 1990s

**W**HAT CAN I SAY ABOUT education in the 1990s that would be neither obvious nor repetitive, nor exceed this page? We will use much new information and many new skills. Of course. We will encounter different modes of instruction and guidance for medical work, achieved especially via computers and communication advances. Of course. Yet, much that physicians will do will be the same as before, generically anyway. We will still try to help our fellow beings who have health problems (even though the definition of "health" undergoes evolution). We must still obtain information — the patient's history, the physical examination, the additional information from laboratory and imaging facilities — and then, maybe with the help of living and non-living (machine) consultants, we must arrive at our best interpretation of the patient's problem and offer our best counsel.

Other constants will remain. Education will continue. And occasionally, teachers will receive "feedback" from their students. It doesn't happen often, but a little of it gives lots of reward to the caring teacher. For example, I recently saw a letter sent to one of my own medical school preceptors, Dwight Sattler of Kalona. The message came from a more recent preceptee — there have been many of us that Doc has helped over the years. It said well what I, too, have felt:

It's a sad reality in our world that most of us never know whether or not our lives mattered, or if we have had a part in making this world a little better than we found it. . . . Despite my formal education, I have no difficulty in identifying my mentor: Dwight Sattler, M.D. Although I will never know

where every nerve crosses every muscle, . . . I thank you each time I whisper in a child's ear to quiet them down, or spend an extra moment to teach someone something that I have learned. Under this military uniform, you have transplanted the heart of a country doctor and for that I am eternally grateful.

Another recent pleasure was to attend a program and festivity honoring Mason City's John MacGregor on his retirement from a career full of surgery and diverse public service. John's colleagues began their description of him by saying "He is a man of compassion." That's accurate. It's also hard to think of a more laudatory term. It reminded me of a favorite passage from a favorite writer of mine, the surgeon, Richard Selzer, who reflected on being a surgeon:

A surgeon does not slip from his mother's womb with compassion smeared upon him like the drippings of his birth. It is much later that it comes. No easy shaft of grace this, but the cumulative murmuring of the numberless wounds he has dressed, the incisions he has made, all the sores and ulcers and cavities he has touched in order to heal. In the beginning it is barely audible, a whisper, as from many mouths. Slowly it gathers, rises from the streaming flesh until, at last, it is a pure calling — an exclusive sound, like the cry of certain solitary birds — telling that out of the resonance between the sick man and the one who tends him there may spring that profound courtesy that the religious call Love.

I think of no compliment greater than to have someone say to me, "Gosh you remind me of John MacGregor."

The 1990s are here, and welcome they are, for all the good things they will bring, along with all the "buzzing, booming confusion" that also seems sure. But they, too, will pass. That teachers will influence students, for good or ill — ah, that will persist.

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Dr. Caplan is Associate Dean for Continuing Medical Education at the University of Iowa College of Medicine.

## CME Update

During February of 1990, all Iowa physicians who do not have valid certificates for the AMA Physician's Recognition Award (PRA) will be mailed an application form. The form is sent as a service to both AMA members and non-members who wish to receive recognition of their continuing medical education activities.

The PRA was established by the AMA House of Delegates to encourage participation in CME and recognize physicians who complete acceptable CME programs. PRA certificates are provided for 1, 2 or 3 years of effort. One year certificates require 50 hours of CME, 20 of which must be AMA PRA Category 1; 2-year certificates require 100 CME hours, 40 of which must be AMA PRA Category 1; and 3-year certificates require 150 CME hours, 60 of which must be AMA PRA Category 1.

In Iowa, physicians must report CME hours to the Board of Medical Examiners at the same time they renew their licenses, every other year. Iowa physicians are required to compile and report 20 hours of Category 1 CME each year, or 40 hours at the time of their biannual license renewal.

The Iowa Medical Society has credited a number of institutions around the state as providers of CME credits.

## Handicapped Parking Permits

New legislation in Iowa will prompt reissuance of handicapped parking hanging devices during 1990. Physicians should be aware they will be contacted by patients to issue a statement on letterhead regarding the following guidelines: the nature of the applicant's handicap and whether the handicap is permanent or temporary.

For purposes of the permits, a handicapped person is someone who, because of disability or impairment, cannot reasonably walk in excess of 200 feet unassisted; or, cannot walk without causing serious detriment or injury to his or her health.

Any person providing false information with the intent to defraud in order to obtain a handicapped permit is subject to a civil penalty of \$100.

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## Recent Books

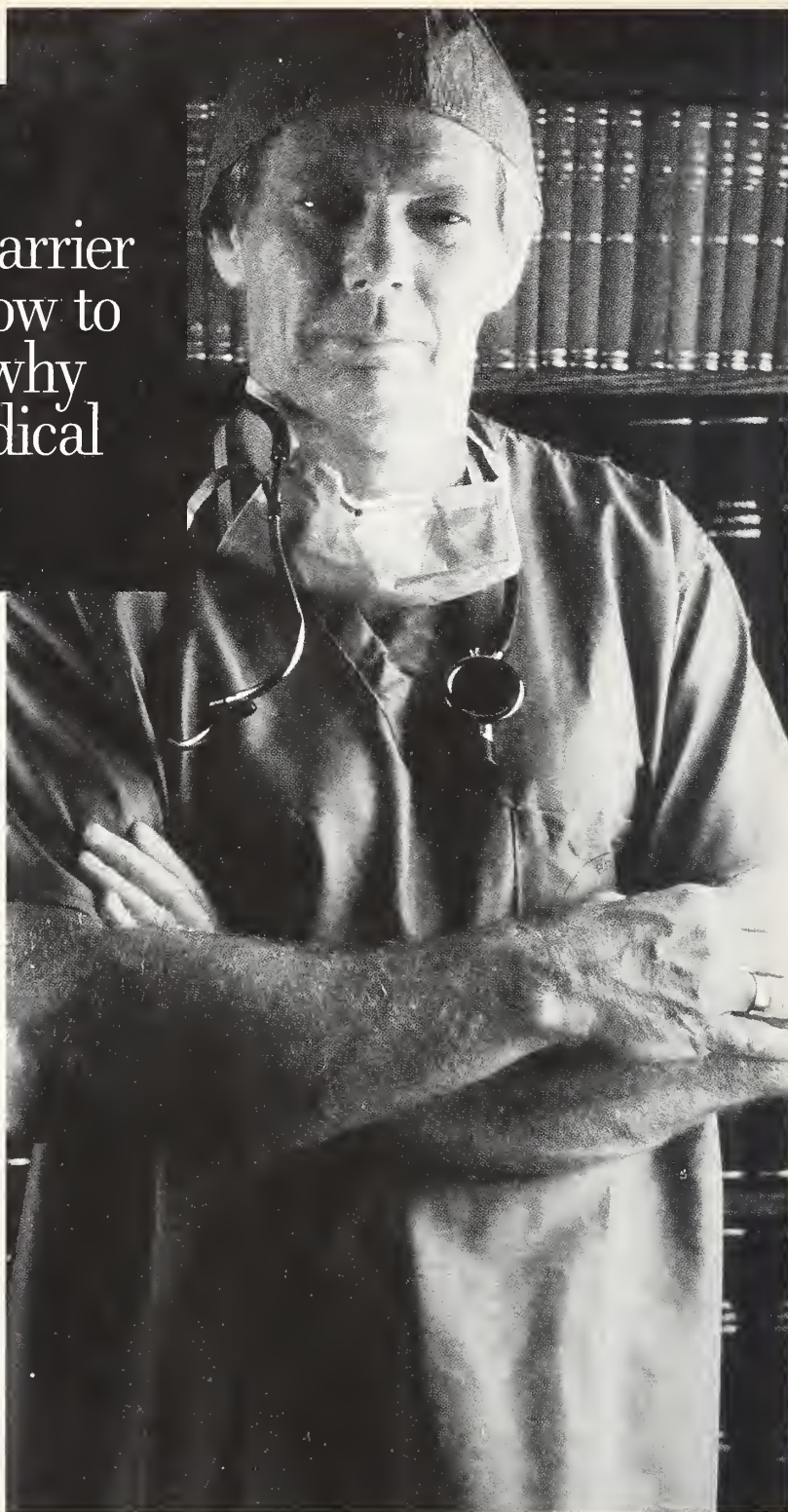
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Conservative scholars of The Heritage Foundation propose a complete overhaul of America's health care system. In a 217-page study entitled *A National Health System for America* the plan proposed the existing employer-provided health insurance system be replaced by a new system wherein most Americans would pay directly for routine medical needs and purchase their own health insurance against major illnesses. Present tax-exclusion for employer-provided health insurance would be eliminated by their plan. Individuals would instead receive a direct tax relief for all their medical needs and health insurance costs. The authors admit they do not have all the answers but believe in a system that empowers consumers to make their own health-care decisions. Those interested in this concept may order a copy of the study from The Heritage Foundation, 214 Massachusetts Ave., N.E., Washington, D.C. 20002. The price is \$8.00.

Long, James W., 1989, *The Essential Guide to Prescription Drugs — 1990*, Harper and Row, New York, New York, paperback \$13.95. This reference book, designed for the consumer, has been called the "PDR for patients" by the *Journal of the American Pharmaceutical Association*. This 1094-page book is divided into several sections to inform the consumer about drugs which may have been prescribed. Section 1 is a "how to use this book" introduction. Section 2 discusses the use of drugs in the treatment of 25 common chronic disorders. Section 3 is the bulk of the book — drug profiles of 220 prescription (and some non-prescription) drugs in a very useful format with adequate descriptions, generic and brand availability, as well as benefits and risks. The other shorter sections are concerned with drug classes, glossary of drug-related terms and tables of drug information. Adequate references are given and the index is complete. This can be a valuable reference to the consumer as well as another form of information for the physician.



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## Beginnings

**T**HIS TITLE IS SELECTED for several reasons: we are beginning a new decade, I am still reasonably new in my position as director of biomedical ethics at the University of Iowa College of Medicine and this article is the first of a number of contributions I will make periodically to *IOWA MEDICINE*. My contributions will include articles on ethical issues in medicine, resources in biomedical ethics, discussions of current literature and analyses of important cases.

The title is selected for another reason — we have already experienced the “beginnings” of some of the ethical issues that will significantly influence the practice of medicine in the new decade. Although new issues will undoubtedly come along as new technologies are developed, many of the ethical issues in medicine in the 1990s will be only a continuation of developments in the 1980s.

Here are a few developments that will continue to add to the ethical complexities of medical practice and research:

- Decisions about life-sustaining treatment with extremely premature and severely disabled newborns brought about federal “Baby Doe” regulations and subsequent child abuse regulations and pediatric ethics committees.

- The aging of the American population highlighted the importance of geriatric medicine, the prevalence of Alzheimer’s Disease, ethical problems connected with dementia and the frequent need for elderly patients to have surrogate decision makers.

- Advances in medical genetics brought closer to reality the prospects of widespread genetic screening, commercial and forensic use of genetic information, human gene therapy

and mapping and sequencing of the human genome.

- New reproductive technologies brought about a host of ethical questions. These include the moral status of preembryos and embryos and the morality of assisted reproductive technology, cryopreservation of fertilized ova and surrogate motherhood.

- The widespread use of life-sustaining technologies for adults increased the need for Natural Death Acts, advance directives, decisions to abate treatment, institutional ethics committees, limits on the use of technological feeding and DNR decisions.

- The spread of AIDS raised questions about the ethical responsibilities of physicians and other health professionals, discrimination, confidentiality, the duty to warn persons at risk of HIV infection, the safety of the workplace and a host of other issues.

- Concern over the waste and equitable distribution of scarce organs resulted the federal Task Force on Organ Transplantation, the United Network for Organ Sharing and a continuing debate over appropriate ways to secure organs and identify recipients.

- The increased knowledge of rising health care costs and the scarcity of medical resources sparked a national debate over several allocation plans, with much attention given to age-based rationing proposals and the decision in Oregon to prioritize Medicaid services on the basis of public values.

- The impact of the law on medical practice created an increasingly litigious climate for patients and physicians, anxiety over malpractice suits, defensive medical practices and uncertainty among physicians on informed consent and abating life-sustaining treatment.

What new ethical concerns, problems and issues will the 1990s bring? Stay tuned.

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This column is written by Robert Weir, Ph.D., director of biomedical ethics for the University of Iowa College of Medicine.



## Revolutionary Changes

**T**HE PRACTICE OF MEDICINE has always been subject to change, change driven by internal factors and external forces. The management of a practice is affected by this evolutionary process, but as we enter the next century, the changes may seem more revolutionary.

Consider the changes that occurred in the late 1980s. Information gathering, reporting and communication has changed dramatically. We must deal with local area computer networks, electronic bulletin boards, FAX machines, cellular phones, etc. Each level of increased technology and change, in or out of the medical field, has established a new level of service expectation for the practice.

The next century will see video and optical storage discs, instant audio/video communications, shared informational data bases and the immediate storage/retrieval of medical records and files. Paper flow is ending.

Marketing will be increasingly important. Health care bulletins/newsletters are periodically distributed to your patients. A summary of services provided is given to your patients with a schedule of upcoming visits and medical concerns for the entire family.

As in the past, people issues will be critical. They represent your greatest asset or your largest liability. Compensation and benefits costs are still significant, extremely competitive and are routinely tied to the actual performance of the practice. Education and retraining are common benefits and necessary to keep current with the technology and office changes taking place. Leased employees and independent professional office managers are common due to the ever increasing level of

operating complexities, especially benefit regulations and their related administrative costs.

Medical facilities have become more accessible. Clinics are located near work and shopping centers. Satellite units are associated with and financed by larger hospitals and medical providers which provide these facilities to independent doctors and practices. The house call will return but not in the old format. Due to technological advances, patient data will be obtained and monitored at home with video communication and feedback.

No longer will the phone call or examination be the only means of initially determining the seriousness or proper diagnosis for a patient. In-home medical equipment accurately measures and records various functions. This data is accessible to the doctor and is automatically compared to the patients norms and previous medical history. Artificially intelligent software is available to aid in diagnosis and treatment without the inconvenience or delays of travel/commuting.

Accessibility will continue to affect the way people are charged for services. Prefunded medical plans for routine services are available through the medical practice. Third party providers cover unusual and unexpected cases and the financial operation of the practice is closely tied and shared with the profitable operation of third party providers. Depository accounts are held with the respective insurance providers where excess funds are invested and available immediately for transfers to other accounts or entities, thus eliminating the time delay or float on those monies.

Your medical practice has changed and is still evolving. More and more, it will encompass characteristics and operating procedures that were once the domain of banks, insurance companies, hospitals and Star Trek re-runs.

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This article was written by Kevin Prust, a partner with McGladrey & Pullen, Des Moines.



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## Public Health Legislation

**W**HEN RECOGNIZING EMERGING PUBLIC health issues, the Iowa Department of Public Health is obligated to alert the General Assembly to what legislative action is required in response to these issues. Prominent among these issues are concerns about access and affordability of health care. The ability to collect information to prevent health hazards and evaluate the effectiveness of interventions is also necessary.

The department will encourage legislators to act on several proposals submitted for consideration during the 1989 session but remain unaddressed. These include the certificate of need law and termination of pregnancy reporting.

In addition, the department will seek legislative response to vital records, injury reporting and language in the Code of Iowa.

### *Proposed Legislation*

**Vital Records** — A number of improvements are offered which will enable the department to be more responsive to the public. For example, to allow for speedy access to birth certificates (often required for entitlement benefits), the department proposes hospital administrators be authorized to sign birth certificates.

**Injury Reporting** — Modifies a proposal submitted in 1989. The bill draft defines reportable injuries as drownings, near drownings, amputations, central nervous system injuries, burns and severe farm or agriculture-related injuries.

**Code of Iowa** — Provide changes to offset discrepancies that exist because of other code modifications. For example, when juvenile

substance abuse residential treatment programs were permitted to hold only one license from the Iowa Department of Public Health (previously, these programs also had to be licensed by the Department of Human Serv-

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*'The department will seek to increase funding for several existing public health programs including substance abuse prevention and treatment.'*

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ices), access to child abuse registry checks for persons applying for jobs that involve working with juveniles was eliminated. The department proposes a code amendment to authorize child abuse registry checks of persons applying for work at juvenile substance abuse residential treatment programs.

### *Budget Matters*

Considerable energy is directed toward the budget process during the session. The department's current budget includes over \$70 million in state and federal funds. The department will seek to increase funding for several existing public health programs including substance abuse prevention and treatment, preventive dental and nutritional services for low-income children and grants to rural health projects.

Throughout the session, the department responds to requests for information on a variety of public health issues and proposals. For additional information on the department's legislative agenda, contact Mike Coverdale at 515/281-4342.



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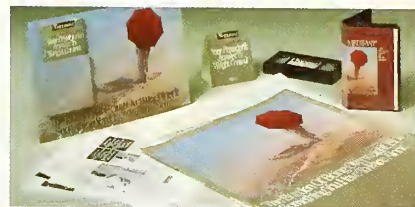
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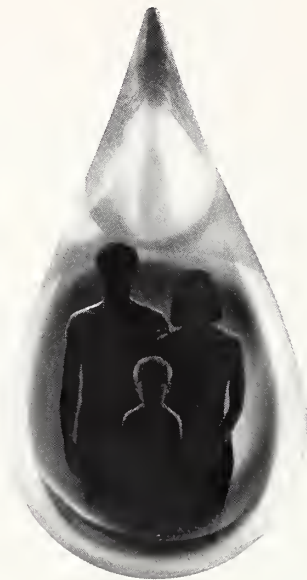
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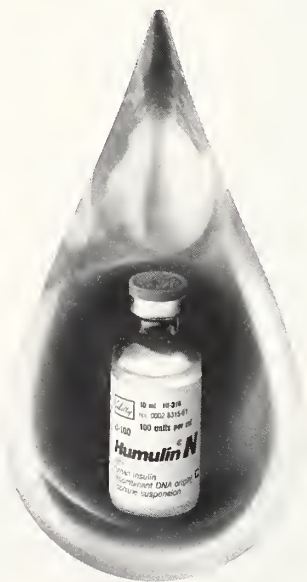
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# About Iowa Physicians

**Dr. James Kimball**, director of Broadlawns Hospital residency program, Des Moines, was recently elected president of the Iowa Academy of Family Physicians at the Academy's 41st annual meeting. **Dr. Donald Soll**, Denison, was named president-elect. **Dr. Gerard Stanley** has joined **Dr. Curtis Mock** in the W. P. Clinic in Onawa. Dr. Stanley previously practiced family medicine in Milliken, Colorado and also served as associate clinical professor in the family practice residency training program in Greeley, Colorado. **Dr. Paul Ferguson**, Lake City, was recently named Iowa's outstanding male unit volunteer by the Iowa Division of the American Cancer Society. Dr. Ferguson received the Harold W. Morgan Award at the organization's annual meeting in Des Moines. **Dr. James McCabe** has joined the family practice of **Dr. Gary Mansheim** in Burlington. Dr. McCabe had practiced for 10 years in Storm Lake. **Dr. Martha Ryan**, a radiation therapist, has joined the staff at St. Joseph Mercy Hospital in Mason City. Dr. Ryan received the M.D. degree from the University of Texas Medical School, San Antonio, Texas and completed a radiology residency at the University of Utah Medical Center, Salt Lake City, Utah. Dr. Ryan is also in private practice in Mason City. **Dr. Charles A. Honnold III**, a physician at Muscatine Health Center for 15 years, has joined a family medicine center in San Diego, California. The following physicians at U. of I. Hospitals and Clinics have been named outstanding U.S. medical specialists in the October issue of *Town & Country* magazine: **Drs. Jennifer Niebyl** and **Frank Zlatnik**, obstetrics and gynecology; **Jay Krachmer**, **H. Stanley Thompson** and **Jeffrey Nerad**, ophthalmology; **James Corbett**, neurology; **Bruce Gantz** and **Brian McCabe**, otolaryngology; and **Robert Corry**, general surgery. **Dr. William McCormack**, an Ames pediatrician, was recently presented the Presidential Award from the American Academy for Cerebral Palsy and Developmental Medicine. Dr. McCormack, credited for his innovative work with

the infant respirator, accepted the award in California. **Dr. R. David Holmsten** has joined Fort Dodge Medical Center as a cardiologist. Dr. Holmsten received the M.D. degree from the University of Illinois at Chicago Health Sciences Center, Chicago, Illinois. He previously served as a clinical associate professor, internal medicine, at the University of Kansas School of Medicine, Kansas City and as chief of medicine at the Veterans Administration Hospital, Topeka, Kansas.

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## Deaths

**Dr. Ralph C. Carpenter**, 83, Marshalltown, died November 6 at Marshalltown Medical and Surgical Center. Dr. Carpenter received the M.D. degree from the University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania and completed a residency at the U. of I. Hospitals and Clinics. He practiced in Marshalltown for more than 30 years, retiring in 1977. He was a member of the American Academy of Otolaryngology, the American College of Surgeons and a life member of the Iowa Medical Society.

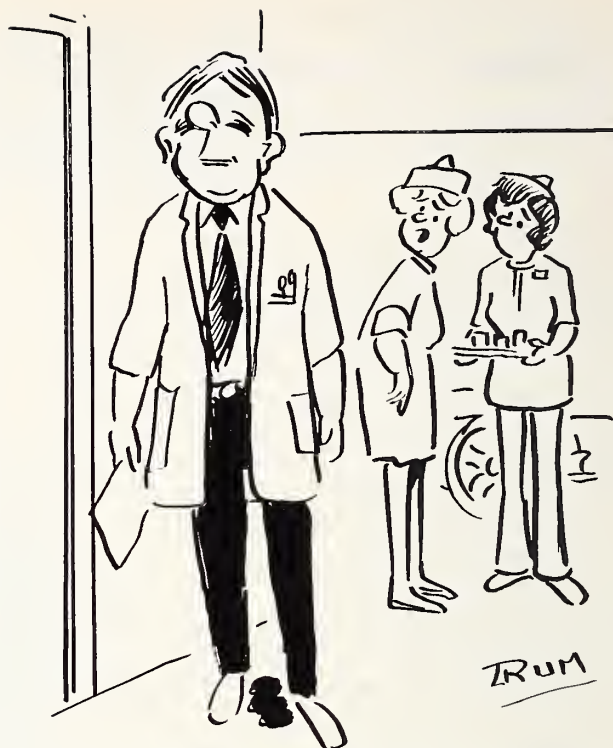
**Dr. Charles H. Fee**, 77, formerly of Denison, died October 26 in Tucson, Arizona. Dr. Fee received the M.D. degree from Rush Medical College, Chicago, Illinois and interned at Illinois Central Hospital, Chicago. He practiced family medicine for 30 years and was a member of the American Academy of Family Practice and a life member of the Iowa Medical Society.

**Dr. Martin S. Esders**, 77, DeWitt, died November 6 at DeWitt Community Hospital. Dr. Esders received the M.D. degree from Vienna and University of Berlin, Berlin, Germany and served his residency at Iowa Lutheran Hospital, Des Moines. He practiced in DeWitt and Davenport for nearly 30 years, retiring in 1983. He was a life member of the Iowa Medical Society.



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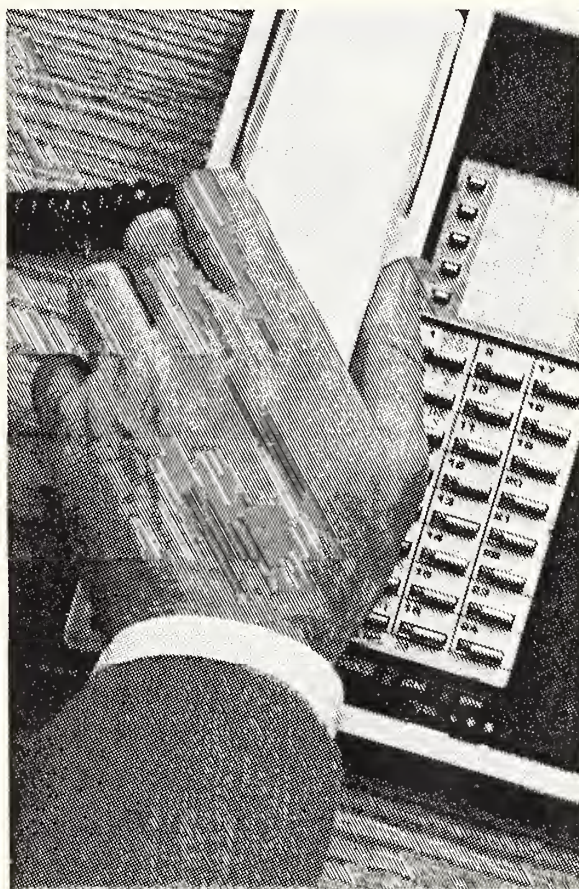
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## Finding the Answers: Taking the Lead

**W**HILE IT WASN'T PLANNED to complement this issue of *IOWA MEDICINE*, an event on the University of Iowa medical campus last month offered many stimulating glimpses into the future of medicine and medical practice.

A veritable showcase of current publicly-supported research into problems of cancer, heart, neurological and other diseases and disorders, the afternoon program — structured for a non-scientific audience — celebrated the long-standing research partnership between the University of Iowa and the National Institutes of Health.

### *Futuristic Presentations*

Presentations by medical, dental, nursing and pharmacy faculty ranged from fundamental studies of behavior of brain blood vessels in stroke to use of the insulin pump to treat diabetes; from the effects of smokeless tobacco on the lining of the mouth to occupational hazards related to lung disease.

Health problems ranging across the lifespan included the Muscatine Project, targeted at decreasing cardiovascular risk factors in childhood; a study of the papilloma virus implicated in genital cancer; application of brain imaging techniques to assess brain metabolism in schizophrenic patients; evaluation of an approach to healing the decubitus ulcers which plague bedridden patients; and use of auditory implants to treat deafness in people of all ages.

### *"Awesome" Display*

Other UI investigators discussed their attempts to gain understanding, enhance prevention and improve treatment both of disorders present at birth (cleft palate, cystic

fibrosis) and of diseases acquired during the lifespan such as cardiovascular disease, infections and stroke.

To borrow a current phrase from the teenage lexicon, it was an awesome display of where the healing arts are headed in the next decade and of our own Iowa scientists who are leading the way, utilizing the latest research techniques (e.g., molecular biology) and tools (e.g., positron emission tomography). Adding to the luster of the occasion was the setting for most of the exhibits and demonstrations: the recently-opened John W. Eckstein Medical Research Building, 5 floors of laboratories specifically designed for researchers working in interdisciplinary "clusters."

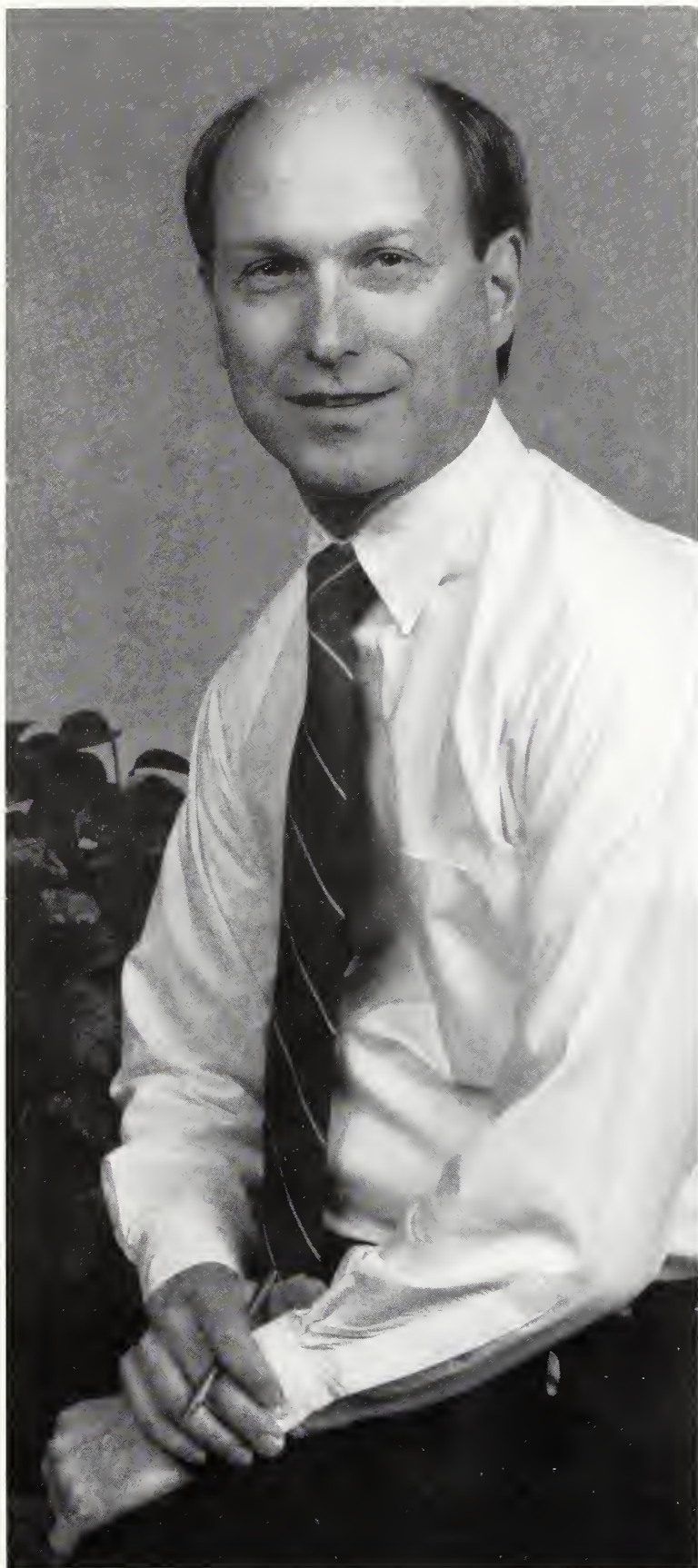
Witnessing such a concentration of talent working in such a setting makes it easy to understand why our own state medical school currently ranks sixth among all public medical schools in number of NIH Career Development Awards and ninth in over-all NIH funding. Truly, an institution and program whose efforts are totally concentrated In The Public Interest.

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January 1990

Iowa Medicine

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Journal of the Iowa Medical Society

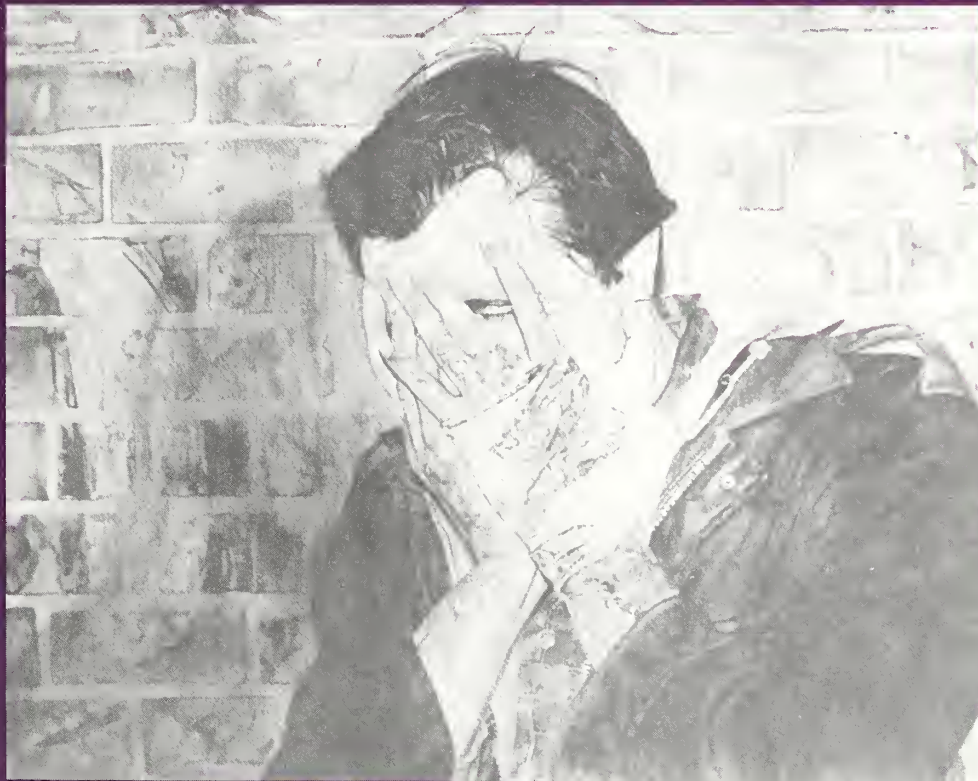
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# In This Issue

## Departments

- 59 President's Privilege
- 63 Questions and Answers
- 64 Recent Books
- 78 Clinicopathologic Conference
- 83 The Editor Comments
- 84 CME Notebook
- 87 IFMC Case Notes
- 88 Practice Management
- 90 Drug Therapy Review
- 97 Iowa Department of Public Health
- 106 In the Public Interest

## Special Articles

- 60 **Neuroleptics and Schizophrenia**  
*As the underlying causes of schizophrenia become better understood, treatments will become more effective.*  
**Michael Flaum, M.D.**
- 66 **An IFMC Response**  
*A December, 1989 IOWA MEDICINE article on the peer review process draws an editorial reply from the Iowa Foundation for Medical Care, Iowa's PRO.*

## Scientific Articles

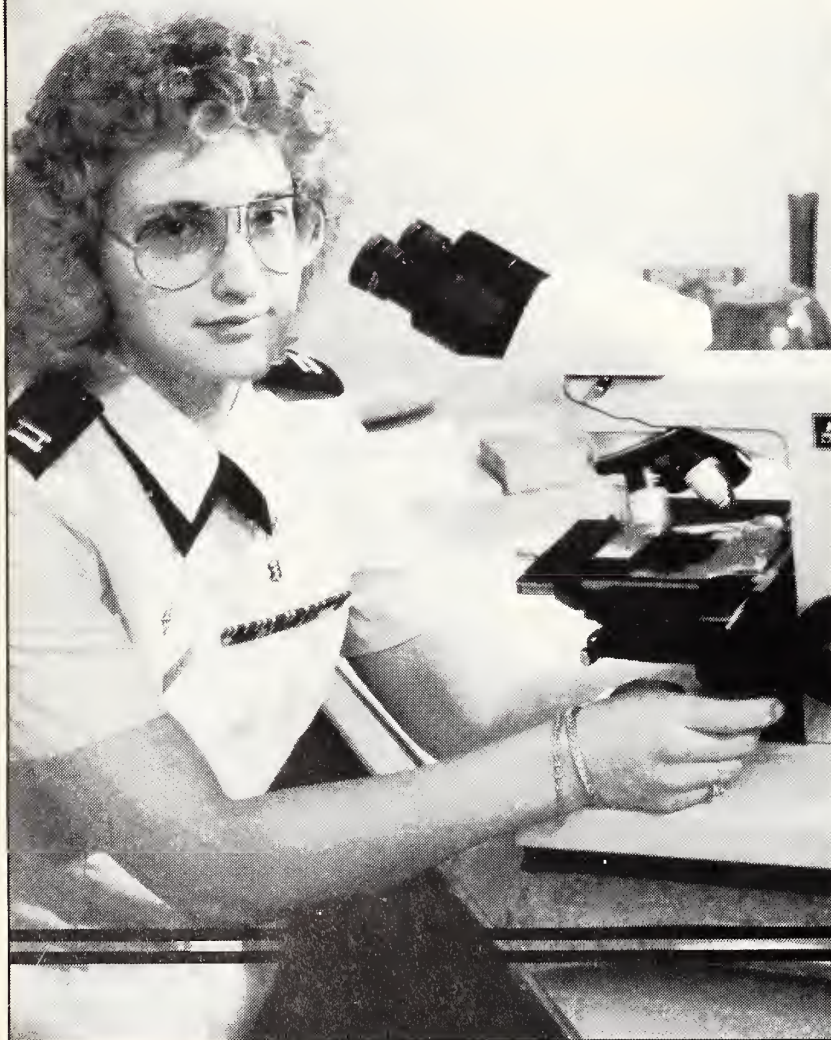
- 69 **Late Life Psychoses**  
*For elderly patients, development of psychoses as a result of another illness can be a serious concern.*  
**Victor Swayze, II, M.D., Theodore Anfinson, M.D.**
- 73 **Cholinesterase Risk For Iowa Farmers**  
*Agribusiness workers may be at risk of poisoning during corn planting.*  
**Scott Helmers, M.D., Janet Dykstra, R.N., Brian Kemp, M.Ag.**

## About the Cover

This month's cover features an oil painting entitled "Serperastra" by Fort Dodge artist Richard Hanson. An art instructor in the Fort Dodge Community Schools, Mr. Hanson has exhibited his work all over the United States.



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## Donald F. Rodawig, M.D.

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President's Privilege



# A Special Thank You

**W**E PHYSICIANS SOMETIMES HAVE BLINDERS on, concentrating mostly on caring for our patients and attending to the myriad of details involved in a medical practice. Unfortunately, at times we forget to show our genuine appreciation to our office staff and others who help us accomplish what we do.

In the category of people we should thank more often is the Iowa Medical Society Auxiliary, whose assistance and support is sometimes unnoticed but always invaluable. As I studied the Auxiliary's 1989-90 program agenda, I was impressed by the exemplary number of projects noted.

A statewide Adolescent Health Project is being considered by the IMS/IMSA to reduce harmful health practices of Iowa youth. The Auxiliary is developing an anti-substance abuse poster featuring signatures of professional basketball stars to be distributed to all Iowa schools.

This past fall, the Auxiliary sponsored an important seminar on "Communication in the Medical Family," with special invitations given to resident physicians and their spouses. The Auxiliary established the HELPLINE under the auspices of the IMS Committee on Assistance Program for Troubled Physicians. HELPLINE offers support and assistance to medical families struggling with alcohol or drug abuse problems.

An Auxilian serves on the Iowa Coalition for Comprehensive School Health Education, which is responsible for a wide variety of conferences and resources to deal with issues affecting Iowa's young people.

Also this fall, the IMSA was instrumental in creating the extremely successful Mini-Internship Program, through which 33 legislators across Iowa spent a day with a local physician and got a first hand look at a medical practice. The program was so well received it may be expanded for next year.

I also should mention that Auxiliary members are an integral part of the IMS legislative agenda each year; without their assistance, our accomplishments would be fewer. On the local level, our spouses are active in politics and in community affairs, contributing to the public good and improving the image of physicians.

Finally, it is my pleasure to note that Elaine Olsen of Minden, past president of the auxiliary and a representative on the board of the Iowa Medical Political Action Committee, will be running for state representative from Pottawattamie-Mills county in 1990.

I ask my fellow physicians to join me in saluting the network of auxiliary members working mostly outside the limelight to improve the climate in which we practice. We should all do so more often.

A handwritten signature in cursive script that reads "Donald F Rodawig MD".

Donald F. Rodawig, M.D.  
President



# Neuroleptics and Schizophrenia

MICHAEL FLAUM, M.D.  
Iowa City, Iowa

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## *Pharmacological refinements in treatment of schizophrenia are discussed.*

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SINCE DISCOVERY OF THE ANTIPSYCHOTIC efficacy of chlorpromazine (Thorazine) in the early 1950s, this agent and related compounds, commonly referred to as neuroleptics, have become the mainstay of schizophrenia treatment. A large body of research demonstrates these medications diminish psychotic symptoms during and following acute episodes and reduce the frequency of exacerbations in a majority of schizophrenic patients.<sup>1</sup> Although they have proven to be remarkably safe, neuroleptics remain unsatisfying as the backbone of schizophrenia therapy because they are not curative, they have troublesome side effects and a substantial minority of schizophrenic patients are refractory to neuroleptic treatment.

Despite almost 4 decades of pharmacological research, Thorazine remains one of the most widely prescribed antipsychotics and overall treatment strategies have not changed in principle since its introduction. There has been a gradual and ongoing refinement in use of neuroleptics to optimize the current treatment of schizophrenia while awaiting more definitive strategies.

---

Dr. Flaum is the clinical director of the Mental Health Clinical Research Center at the U. of I. College of Medicine.

## *Prescribing Practices*

One area of refinement has been in the way neuroleptics are prescribed. In the 1960s, it was common to use multiple antipsychotics concomitantly. For example, high and low potency antipsychotics were frequently used together to achieve the "optimal blend" of their putatively specific actions. In the following decade, we came to recognize there was little if any advantage in such polypharmacy because while side effects appeared to be additive, antipsychotic efficacy did not. The analogous lesson of the eighties may be that the doses most commonly used in the past may have been unnecessarily high. Whereas 1-2 grams of chlorpromazine were routinely prescribed for acute episodes, the literature now suggests doses on the order of 400-600 mg of chlorpromazine (or equivalent doses of other neuroleptics) are just as effective for most patients.<sup>2</sup>

The practice of "rapid neuroleptization" — giving hourly parenteral doses of high potency antipsychotics such as haloperidol at the onset of treatment — has been found to be no better than moderate or low doses. The practice often leads to unnecessarily high maintenance dosing. Dosage strategies are changing in the same direction with respect to maintenance treatment; where doses of 50 mg/week of Prolixin decanoate were not uncommon, it is now being recognized that much lower doses, on the order of 5-10 mg biweekly may be preferable in some situations.<sup>3</sup> Although the rate of exacerbation may be greater with such a low-dose approach, the quality of life between episodes appears to be significantly better. Therefore it may be an appropriate strategy in a pa-

tient who has some insight and/or a support system to ensure he/she be closely monitored so doses can be supplemented when and if signs of an exacerbation emerge.

A second area of refinement has to do with the improved recognition and treatment of akathisia, a common side effect. While the extrapyramidal symptoms of dystonia (and to a lesser extent, pseudoparkinsonism) have been easily identified and treated, akathisia has been more difficult in both respects. Akathisia (the inability to remain seated) may appear in the form of pacing, foot tapping and constant shifting of weight from one leg to another in a patient

effective in diminishing both the objective and subjective signs of akathisia.<sup>5</sup> The doses are lower than those for cardiac illnesses (20-80 mg/day in divided doses) and the rates of further side effects from these agents are minimal. Failing this, low-dose benzodiazepines are often beneficial, although with these drugs the potential for abuse, addiction and withdrawal exist, so they should be used only as a last resort.

## Diagnosis/Assessment

Pharmacological refinement in treatment of schizophrenia has also occurred in diagnosis and assessment. The redefinition of schizophrenia introduced a decade ago by DSM-III was a much narrower one than had been previously applied. This resulted from cross-national, family and outcome studies suggesting many cases we had been treating as schizophrenia were actually affective disorders, and that they can be virtually impossible to distinguish from one another on the basis of cross-sectional evaluation.<sup>6</sup>

Since the somatic treatment of affective disorders (using a variety of antidepressant medications, lithium, anticonvulsants and electroconvulsive therapy) is more targeted and is felt to be ultimately more benign than long-term use of neuroleptics, the accepted clinical strategy is when in doubt, treat as if the underlying illness is affective. This is not to suggest the use of neuroleptics be delayed in a patient who is clearly schizophrenic; rather it suggests the treating physician must rule out affective illness before treating for schizophrenia, whereas the opposite is not the case. Neuroleptics can be effective in treating psychotic and even non-psychotic affective episodes, so the clinician should be cautious about assigning diagnostic significance to neuroleptic response. Conversely, if thorough trials of anti-affective treatments fail in diagnostically questionable cases, neuroleptic therapy can be confidently pursued.

For schizophrenic patients who do not respond to standard neuroleptics or who have refractory extrapyramidal side effects limiting their use, a newly released antipsychotic, clozapine, may be beneficial. Clozapine is an atypical antipsychotic in many respects: Unlike most of the standard agents,

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*'Akathisia appears to be one of the most common of the extrapyramidal side effects, occurring in up to 45% of cases; it is now recognized as a major cause of non-compliance.'*

---

recently started on antipsychotic medication. However, akathisia is defined clinically as a subjective need or desire to move, and many patients have little or no objective evidence of a movement disorder but experience an inner sense of restlessness or anxiety which improves when they stop taking neuroleptics.

The restlessness of akathisia can be difficult to distinguish from the agitation of an escalating psychotic episode. Therefore, the clinician often responds by increasing the neuroleptic dose, resulting in worsening symptoms and a more confusing clinical picture. Akathisia appears to be one of the most common of the extrapyramidal side effects, occurring in up to 45% of cases; it is now recognized as a major cause of non-compliance.<sup>4</sup>

Improved treatment strategies complement increased awareness of this problem. The first step is to reduce the dose of neuroleptic if possible. If akathisia continues despite low doses, anticholinergic and antiparkinsonian medications may be helpful. Recently, beta-adrenergic blocking agents such as propranolol have been found to be

(Continued next page)



it binds to dopamine receptors weakly and appears to have significant affinity for serotonergic, alpha-adrenergic and histaminergic receptors. In both animal studies and clinical trials it does not produce a variety of effects attributable to the dopamine blockade, common to all other currently available antipsychotics agents. This probably accounts for the extremely low incidence of extrapyramidal side effects caused by clozapine.<sup>7</sup> This includes tardive dyskinesia, of which to date there have been no confirmed cases attributable to clozapine.

In addition to this significant advantage, it may offer superior antipsychotic efficacy. In a large multi-centered study of more than 250 schizophrenic patients proven to be refractory to standard neuroleptic treatment, about one third of the group showed significant improvement with clozapine. Less than 5% improved with continued standard treatment.<sup>7</sup> There is also some evidence to suggest patients with prominent negative symptoms (apathy, blunted affect and anhedonia) may preferentially respond to clozapine, although this is quite preliminary.

### **FDA Approval**

A superior antipsychotic that does not cause tardive dyskinesia sounds too good to be true and, in fact, there is a catch. Although the drug was just recently approved by the FDA (for release February 1, 1990) it was first introduced in Europe in the early 1970s. Interest in the drug waned in 1975 after a cluster of clozapine patients in Finland developed agranulocytosis resulting in 8 fatalities. Almost a decade passed before investigators in the U.S. cautiously reinitiated clinical trials. They found that when agranulocytosis does develop, it usually does so gradually, over many days to weeks. If the white blood cell count is closely monitored and the drug is stopped when the white count falls, the condition appears to be fully reversible. While the incidence of agranulocytosis does appear to be between 1-2% per year of clozapine use, since the policy of weekly CBC's were instituted in the U.S. clinical trials more than 5 years ago, all cases have proven to be reversible.<sup>8</sup>

The pharmaceutical company distributing this drug has chosen to continue this

policy and is taking unprecedented steps to ensure compliance with weekly CBC's. An elaborate network has been set up whereby as part of the costs of the drug, a phlebotomist will visit the patient weekly to draw blood for a CPC and provide a week's supply of medication. It will be the prescribing physician's responsibility to check the CBC. Naturally, such a policy results in higher costs for the medication (estimated to be on the order of \$10,000 per year for each patient). However, if the drug proves to be a superior antipsychotic for a substantial number of patients, savings in hospital costs may justify this.

It should be noted clozapine is not without other, less serious side effects. The most common are drowsiness and tachycardia; hypotension, hypersalivation, dizziness, hyperthermia and constipation also occur with some frequency.<sup>7</sup> Most of these side effects, especially drowsiness, appear to be most prominent during the first few weeks of treatment.

Over the past 2 decades we have improved the risk/benefit ratio of neuroleptics by using them in a more targeted population, identifying the lowest doses necessary and better recognizing and treating common side effects such as akathisia. The introduction of clozapine should decrease the proportion of treatment refractory cases. Although our current pharmacological agents remain non-curative, there is reason to be optimistic that over the next decade, the underlying mechanisms of schizophrenia will be elucidated to an extent that more definitive treatments may be realized.

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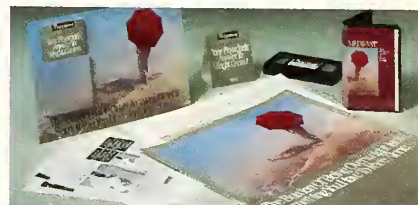
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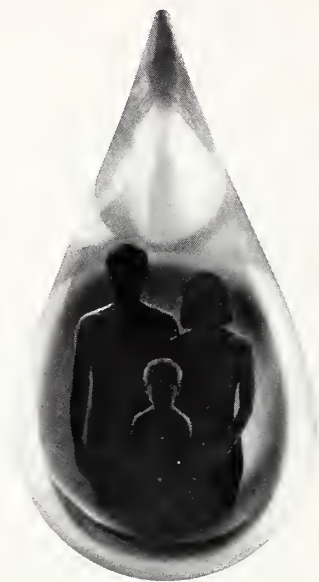
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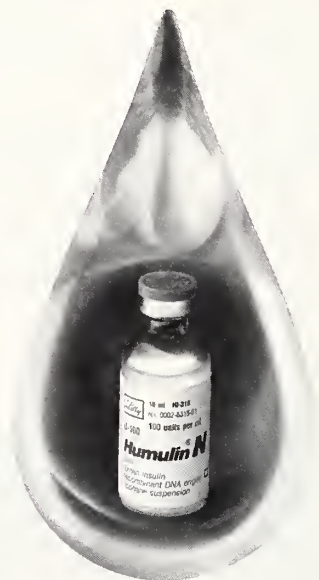
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## Thomas Hansen, M.D.

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Questions and Answers



# Peer Education IPS Goal

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*The author, president of the Iowa Psychiatric Society, discusses the current practice environment for psychiatrists.*

---

### What is the current picture with regard to the supply of psychiatrists?

The statewide supply of psychiatrists reflects the national picture. Parts of rural Iowa have been declared Manpower Shortage Areas for psychiatrists. The public sector is having a hard time attracting psychiatrists. We recently lost the residency training program in Independence; this is affecting supply because when residents come here to train many stay here to practice.

By contrast, the University of Iowa's Department of Psychiatry has never been stronger. Residencies have been filled by excellent students while other major programs around the U.S. have gone begging. There is no concern over the quality of our young psychiatrists, but there is concern over quantity.

### What are the objectives of the Iowa Psychiatric Society?

The goals of the IPS were recently updated. They include improving treatment, rehabilitation and care of the mentally ill and mentally retarded; promote research and professional education; advance standards of psychiatric services and facilities; make psy-

chiatric knowledge available to physicians in other specialties; promote the best interests of patients; establish standards for psychiatric practice and peer review and promote the objectives of the American Psychiatric Association.

### What are the concerns of psychiatrists regarding practice environment?

Psychiatrists, like other physicians, face pressures from increased intrusion of third party payers into medical practice. Insurance plans have gradually provided more mental health and substance abuse benefits. Increased use of psychotherapy benefits and adolescent services have pressured third party payers to look at alternatives to traditional coverage. Psychiatrists have seen capitation programs, managed care systems, non-medical gate keepers and utilization review. It becomes increasingly difficult to understand the rules.

The blurring boundaries between psychiatry and other professions also cause concern. An increased number of groups have attained licensed status with defined scope of practices that overlap psychiatry. Under Iowa law, psychologists can diagnose and treat mental illness. The Department of Defense is carrying out an experimental program for psychologists to prescribe psychotropic medications after a short training session.

Within psychiatry, there is a move to increase boundaries through subspecialization.

*(Continued next page)*



Pressures are building to have added certifications for child, geriatric, forensic, administrative and consultative psychiatry.

### **How have HMOs and Medicare regulations affected care given by psychiatrists?**

HMO regulations create economic pressure to discharge as quickly as possible and a blizzard of paperwork for daily treatment plans. Approvals for admissions, referrals, etc. are needed by someone at the other end of an 800 number. It takes patience to put up with the frustration of time away from direct care.

Medicare regulations affect us differently. Utilization review is more straightforward; the caveat lies in billing and documentation of services. It's a maze out of Alice in Wonderland. This is felt primarily by private practitioners and administrators of community mental health services.

### **What clinical advances have affected the practice of psychiatry?**

In treatment of affective disorders, new antidepressants appear every few months. Although none has proven more effective than

the old standbys, most have fewer side effects. Patients who may be resistant to older medications may respond to the newer ones. Older medications have been found helpful in a subgroup of bipolar disorders. Carbamazepine and thyroid work for some people with rapid cycling bipolar illness. Even the ancient ECT has been refurbished.

EEG monitoring during seizure is now common so greater muscular relaxation during treatment may be employed with a read out of the seizure activity without relying on seeing the patient seize.

The FDA has released a new drug that may prove helpful to treatment resistant schizophrenics. Clozapine has restrictions but may make a great difference in some patients. The other advance is in schizophrenia research. We have learned some male schizophrenics have enlarged cerebral ventricles not related to age.

The SPECT scan is now available in some community hospitals. It can help verify the diagnosis of Alzheimer's dementia. A new antidepressant, fluoxetine, has been found helpful in treatment of obsessive/compulsive disorder.

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## **Recent Books**

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Gilbert, S. G., 1989, *Pictorial Human Embryology*, University of Washington Press, Seattle, Washington, paperback, \$20.00. Some textbooks of embryology can be very difficult to comprehend. This atlas of human embryology should be a godsend to students of medicine and allied health sciences who study embryology in combination with human anatomy. The illustrations are excellent, labeled very completely and each has key letters to indicate the original source. I would suspect medical students would clamor for a copy of this excellent work. I certainly would have welcomed a copy when groping through the mysteries of embryology as a first-year medical student. Also, the price is not prohibitive.

Kowalski, Robert E., 1989, *The 8-Week Cholesterol Cure* (revised edition), \$19.95, *The 8-Week Cholesterol Cure Cookbook* (revised edition), \$19.95 and *The 8-Week Cholesterol Cure Personal*

*Diary*, \$8.95, Harper & Row, New York, New York. The author has developed a cholesterol control plan formulated after study of the literature. The impetus to his interest was a personal battle with high cholesterol levels leading to one heart attack and 2 coronary bypass operations. The plan he has formulated to lower blood cholesterol levels does not involve cholesterol-lowering drugs or the dietary deprivations of other regimens. His approach is based on modified diet, special foods and vitamins. The second volume consists of more than 200 recipes which conform to the plans promulgated by the author. The initial chapters of the cookbook discuss the diet in general with a basic overall shopping list. The diary is a spiral bound book covering each individual day of the 8-week program. Items to be noted each day include food intake (with fat and cholesterol content), a register of stress factors, exercise activities and reminders about niacin and oat-bran/soluble fiber intake. An adequate tabulation of calorie, fat, cholesterol and sodium content of foods is included in the appendix.



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## Letter to the Editor

To the Editors:

The article "Peer Review: Indictment, Trial and Beyond" [December, 1989 *IOWA MEDICINE*] was a disappointment to readers who expected it to contain objective reporting or factual commentary on of peer review by the Iowa Foundation for Medical Care (IFMC).

As practicing physicians who treat Medicare patients and who have been involved with the IFMC for a total of more than 18 years, we are concerned by the inaccuracies it contains. We agree that peer review can have a serious impact on a physician's practice; however, dissemination of misinformation is a disservice to practitioners who seek to understand the system.

The IFMC's primary goal is to improve the quality of care by identifying practice deficiencies and providing a mechanism to help physicians correct them. Once a problem has been identified, our member physicians and staff work with the attending physician to develop an educational solution — not a punitive response. Our commitment to education is evident in the growing number of informational letters, publications and articles prepared and distributed each month, several of which have appeared in *IOWA MEDICINE*. These efforts will continue.

There is no doubt the sanction process is a serious procedure with important legal and financial ramifications. For that reason, the IFMC is preparing a clarification of the December article for Iowa physicians. In the interim, we provide this excerpt from the November 29, 1989 issue of *Health Care Review*, published by the American Medical Association. The article, "How to Respond to a PRO Quality Inquiry," was written by the AMA's Department of Health Care Review.

"Following is a list of steps to take if you receive a letter of inquiry regarding quality concerns from your PRO:

Step 1. Keep calm. Do not send angry letters back to the PRO; discuss the quality issue with a peer.

Step 2. Review the medical record to make sure the PRO hasn't made a factual error in its review of the case. The PRO may have overlooked a critical entry in the medical record.

Step 3. Physicians receiving letters of inquiry from their PRO should carefully consider whether or not to telephone their PRO. A preferred course of action is to write to your PRO, with a copy to the chief of the hospital medical staff, instructing the PRO to communicate its concern to the chief of staff and departmental chairman.

In communication with your PRO, you should present factual information without self-serving statements, argumentative remarks, explicit or implicit admissions of error in judgement, or criticism of care provided by others.

Step 4. You may opt to request a personal interview with the district medical director and a specialist consultant prior to writing a response. A personal interview may be more appropriate than writing, particularly in a complicated case.

Step 5. Keep your response separate from the patient's medical record. Keep communications separate so they are not inadvertently disclosed if the record is produced in response to a subpoena.

As always, detailed histories and patient records are important to keep; such detailed records help you to remember clearly relevant facts involved in the treatment. They may also explain to the PRO reviewer why you chose a particular course of treatment."

The fact is the number of sanctions is decreasing in Iowa and nationally. There is no quota system; the number of sanctions imposed has no bearing on HCFA's evaluation of PRO effectiveness. From its founding in 1972 until its designation as the Iowa PRO in 1984, the IFMC issued one physician sanction. Four sanctions were issued after 1984; none thus far in 1989.

We who participate in IFMC review accept the responsibility to keep Iowa providers of medical care well informed. We will continue to communicate accurate information regarding peer review procedures to those who need to know. Readers who have questions regarding the sanction process are invited to contact the IFMC. We will be pleased to provide the facts.

Thank you for again providing your respected forum. — Richard Perry, M.D., Waukon, Iowa, IFMC president and David Thomas, M.D., Marshalltown, Iowa, chairman, IFMC Comprehensive Review Committee.

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FOR THE PRACTICING PRIMARY CARE PHYSICIAN

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MARCH 10, 1990  
COLLINS PLAZA HOTEL  
CEDAR RAPIDS, IOWA

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**KEYNOTE SPEAKERS**

**William P. Castelli, M.D.**  
Medical Director  
Framingham Heart Study  
Framingham, Massachusetts

**David B. Skinner, M.D.**  
President and CEO, Professor of Surgery  
The New York Hospital, Cornell Medical Center  
New York, New York



# Cedar Rapids Heart Symposium for the Practicing Primary Care Physician • March 10, 1990

## Course Objectives and Intended Audience

This course is designed to provide family practitioners, internists, other primary care physicians and nurses with practical approaches to common cardiovascular disorders. The course will emphasize diagnostic evaluation, treatment modalities and day to day management of these disorders from the perspective of the primary care physician. Specific topics will include updates on: management of stable and unstable angina, new approaches to the treatment of acute myocardial infarction (including thrombolytic therapy), evaluation and treatment of patients with congestive heart failure, risk factor modification for coronary artery disease, indications for pacemaker implantation and follow up, approach to the patient with sudden cardiac death, evaluation and therapy of common cardiac arrhythmias, new aspects of hypertensive therapy, and evaluation of the patient with syncope. Surgical topics will include indications for and post-operative management of patients undergoing coronary artery bypass and valve procedures. Discussion will also cover surgical management of recurrent ventricular tachycardia including implantation of the automatic implantable cardioverter defibrillator.

## Accreditation and CME Credit

As an organization accredited by the Iowa Medical Society for continuing education, the Cedar Rapids Medical Education Program certifies that this continuing medical education offering meets the criteria for 7 Credit Hours in Category 1, provided it is used and completed as designated.

## Nursing Accreditation

.8 CEUS will be awarded upon full completion of the program by St. Luke's Hospital, Provider #46. The program meets criteria for the Iowa Board of Nursing Subject Matter 5.3(2)a(2,3,5). The cost for CEU is included in the conference fee. Certificates will be mailed following the program. For questions or further information on CEU procession or grievance policies, contact Sandra Vanoury at St. Luke's Hospital, (319) 369-7793.

## Exhibitors

Pharmaceutical manufacturers will have representatives available to answer questions and distribute information.

## Program Co-Directors

A. Ersin Atay, M.D., F.A.C.C.  
Staff Cardiologist  
St. Luke's Hospital/  
Mercy Medical Center

Todd T. Langager, M.D., F.A.C.C.  
Staff Cardiologist  
St. Luke's Hospital/  
Mercy Medical Center

James M. Levett, M.D., F.A.C.C.  
Staff Cardiothoracic Surgeon  
St. Luke's Hospital/Mercy Medical Center  
Clinical Associate Professor  
Division of Cardiothoracic Surgery  
University of Iowa Hospitals and Clinics

## Faculty

Lawrence J. Cook, M.D., F.A.C.C.  
Staff Cardiologist  
St. Luke's Hospital/  
Mercy Medical Center

David A. Rater, M.D., F.A.C.C.  
Staff Cardiologist  
St. Luke's Hospital/  
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William G. Meffert, M.D., F.A.C.S.  
Staff Cardiothoracic Surgeon  
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Wilson W. Strong, Jr., M.D., F.A.C.S.  
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Staff Cardiologist  
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James E. Tatkon-Coker, M.D., F.A.C.C.  
Staff Cardiologist  
St. Luke's Hospital/  
Mercy Medical Center

## Guest Faculty

William P. Castelli, M.D.  
Medical Director  
Framingham Heart Study  
Framingham, Massachusetts

David B. Skinner, M.D.  
President and CEO, Professor of Surgery  
The New York Hospital  
Cornell Medical Center  
New York, New York

## Cancellation Policy

A full refund of registration is available if the cancellation notice is received in writing by March 1, 1990. After that time no refund will be given.

## Registration

The deadline for course registration is March 1, 1990. Registration is limited.

## Accommodations

The Collins Plaza Hotel has set aside a block of rooms at a preferred rate for the symposium attendees.

Reservations should be made directly with the Collins Plaza Hotel by calling (319)393-6600. To assure group rate, please identify yourself as a Cedar Rapids Heart Symposium participant.

## Transportation

The Cedar Rapids airport is only a 20 minute drive from Collins Plaza. There are regular flights scheduled throughout the day.

After arriving in Cedar Rapids, car rental is available from several national firms.

Taxi service from the airport is available at all times.

Collins Plaza Hotel has complimentary transportation between the hotel and airport. This transportation runs approximately every half hour and a direct line to Collins Plaza is available at the airport terminal.

## Events

Early Registration with hospitality suite will be available Friday, March 9 from 6:00 p.m. to 9:00 p.m.

Continental Breakfast with morning registration will be Saturday, March 10 from 7:00 a.m. to 7:45 a.m.

Lunch will be provided for program participants at Collins Plaza from 12:00 Noon to 1:00 p.m.

Evening Events include a social hour from 6:30 p.m. to 7:15 p.m., followed by dinner at Collins Plaza.

For further information contact Roman Frigge, Symposium Coordinator at (319)369-74343

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# Late Life Psychoses

VICTOR SWAYZE, II, M.D.  
THEODORE ANFINSON, M.D.  
Iowa City, Iowa

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*The need for new diagnostic tools is illustrated in this discussion of elderly patients who develop psychoses secondary to organic brain syndromes.*

---

**A**LL PHYSICIANS WHO PRACTICE primary care medicine at times see elderly patients who have developed psychosis secondary to a dementing illness such as Alzheimer's disease or, more acutely, as a result of some other type of organic insult. Patients with late-life psychoses without significant global impairments in cognitive skills such as memory, speech production, abstract reasoning, visual-spatial and problem-solving skills are often a difficult group of patients to diagnose.

The clinical course and nature of the psychotic symptoms are very important in differentiating these types of organic mental disorders from more classic psychiatric syndromes. These are mainly schizophrenia,

delusional disorder, bipolar mood disorder (manic depressive illness) with psychotic features — either the manic or depressed phases — and major depression with psychotic features. Prospective studies of late-onset psychosis are being conducted in the United States to increase our understanding of the etiology, course, and outcome of these illnesses.<sup>1,2</sup> These studies will also help develop more effective treatments for these conditions which are most certainly heterogeneous in origin. Some of them may be related to the classic psychiatric illnesses mentioned above and many have more overt organic etiologies related to diseases that occur in the elderly population.

## Case Presentation

This discussion involves a 79-year-old white, widowed man who was brought to the Iowa City VA Medical Center after he had been noted by his son and several friends to have a significant personality change over an approximate 3-week period. The son became aware of his father's difficulty 6 days prior to admission. During a phone conversation, his father was argumentative and irritable and punctuated his conversation with profanity, which was totally out of character. The following day the son spoke with several of his father's friends who said that he was acting peculiar, was irritable and could not be reasoned with. They were concerned he might be having a medication reaction.

Two weeks before his son first became aware of this change in personality, the patient's girlfriend noticed he became confused

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Dr. Swayze is an assistant professor of psychiatry, University of Iowa College of Medicine and staff psychiatrist at VA Medical Center in Iowa City. Dr. Anfinson is a resident in the U. of I. College of Medicine's Departments of Internal Medicine and Psychiatry.

THE IOWA MEDICAL FOUNDATION HAS DESIGNATED THIS ARTICLE AS THE HENRY ALBERT SCIENTIFIC PRESENTATION FOR FEBRUARY 1990



when driving around the small town in which he had lived all his life. He also called her 3 times in one afternoon because he couldn't remember having called her previously. Prior to the symptoms noted above, the patient had been doing very well, had been taking care of himself and living alone in his own home.

When the son became aware of his father's difficulties, he brought him to the hospital for evaluation in the primary care clinic. It was recommended he be seen in the neurology clinic 5 days later. The son then took the patient home with him. While he was somewhat irritable, he did not appear to be in too much distress during that time. However, when he was brought back for the neurology evaluation, he was admitted to the hospital after telling the neurologist, "I'm losing my wheels." Upon admission he was irritable, argumentative, paranoid and suspicious that the nurses were poisoning his food and that one of the staff was reaching for a gun in his pocket.

Past medical history was significant because the patient had been thought to have a small posterior circulation stroke in 1973. He was admitted to the Iowa City VA 6 months prior to the current admission for what appeared to be a minor myocardial infarction that was confirmed by cardiac enzymes. The patient also had a history of chronic obstructive pulmonary disease, high blood pressure, arthritis and a transurethral resection of the prostate for benign prostatic hypertrophy. His medications, which had been started at the previous hospitalization, included nifedipine (10 mg qid), isordil (20 mg qid), terbutaline inhaler (2 puffs qid), maxzide (1 q day), aspirin (1 q day), and nitroglycerine (prn for chest pain).

### ***Hospital Course***

The patient was initially admitted to the neurology service where a complete dementia workup was begun which included a B<sub>12</sub> and folate level, thyroid function tests, VDRL, CBC, general chemistry screen and arterial blood gas. He also had a computerized tomographic scan of the head 2 days after hospitalization which was normal. Several times the neurology staff requested he allow them to perform a lumbar puncture, but he adamantly refused to give consent. Because his workup to that point had been completely negative, the staff felt he should be transferred to the psychiatry service for further evaluation and treatment.

While on the neurology service he was switched from nifedipine and maxzide to verapamil. He also was treated with doses of haloperidol that ranged from 5 to 20 mg a day with some control of his symptoms. However, he would episodically break through with pressured speech, irritability, agitation, paranoia and suspiciousness, displaying poor judgment and poor insight into his own condition. At times the patient was reasonable and could be talked with rationally, but this did not appear to be related to time of day or medication.

With his son's assistance the patient was convinced to undergo a lumbar puncture. The spinal fluid showed no white cells, sugar of 190, protein of 45, nonreactive VDRL, was negative for cryptococcus and had a negative acid fast stain. An EEG was done when the patient was not suffering from one of his irritable, agitated, paranoid states and was given 1000 mg of chlorhydrate to help keep him calm. It was read as an abnormal EEG due to slowing of dominant rhythm secondary to generalized synchronous delta activity consistent with diffuse cerebral dysfunction (non-specific for diagnosis).

After 2 weeks on haloperidol (3 mg tid) the patient had improved, had no further episodes of psychotic agitation and a week later was discharged to live with his son.

### ***Discussion***

Although no specific neurological disorder was identified on a standard dementia workup, the EEG abnormalities were suggestive of some type of toxic metabolic encephalopathic state. This finding might be related to his medications on admission, although this is unlikely since none of them have been noted to cause EEG changes and he was on them for 6 months. However, haloperidol with the addition of chlorhydrate could cause some slowing of the EEG but rarely to this degree. Our final diagnosis was probable organic mood disorder, manic type, of unclear etiology.

This case illustrates well the complex symptom picture patients with late-life psychosis present and the difficulty in arriving at a clear diagnosis. Elderly patients with no prior psychiatric history who develop acute or subacute changes in personality with intermittent memory problems, irritability, agitation and paranoia are much more likely, however, to have an organic basis for their illness and are

unlikely to have a classic illness such as schizophrenia or bipolar mood disorder.

## New Directions

Diagnosis of patients such as the one presented here may soon be aided by functional imaging techniques. Patients with complex partial epilepsy, Alzheimer's disease and the rare syndrome of slowly progressive aphasia without generalized dementia all show significant decreases in metabolism in positron emission tomography (PET) studies using  $^{18}\text{F}$ -fluorodeoxyglucose as the metabolic tracer.<sup>3-5</sup> Many of the patients showed either no anatomical abnormality on computerized tomography (CT) and/or magnetic resonance imaging (MRI) or, as in the case of Alzheimer's disease, diffuse cortical atrophy. A small percentage of patients with acute cerebral ischemia have shown severe metabolic abnormalities with PET even though both CT and MRI failed to disclose any structural defect.<sup>6</sup> Thus, significant metabolic changes occur that cannot be predicted by the results of anatomical imaging.

Because of the need for an on-site cyclotron, PET has remained generally a research tool. Single photon emission computed tomography (SPECT) has in the past had poorer resolution, making it much less sensitive to focal metabolic abnormalities. However, with recent development of higher resolution equipment and commercially available blood flow tracers, SPECT cerebral blood flow studies may soon be incorporated into the routine organicity workup. Much more research is needed with both PET and SPECT in patients with late-life psychosis before these functional techniques can be recommended for routine diagnostic purposes.

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# Cholinesterase Risk For Iowa Farmers

SCOTT HELMERS, M.D.

JANET DYKSTRA, R.N.

BRIAN KEMP, M.Ag.

Sibley, Iowa

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***Exposure to organophosphate insecticides may pose a significant risk in rural populations. The study involved 71 Iowa farmers and 28 agribusiness workers who underwent serial measurements of serum cholinesterase levels prior to and following exposure to organophosphate containing pesticides.***

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ORGANOPHOSPHATES ARE WIDELY USED in Iowa in corn rootworm insecticides and are applied during corn planting. Agribusiness workers who distribute these products and farmers who apply them may risk poisoning.

Organophosphate insecticides inactivate acetylcholinesterase at the cholinergic synapse. Cholinesterase inactivation leads to accumulation of acetylcholine with initial excessive synaptic excitation and subsequent synaptic blockade. There are 2 types of ace-

tylcholinesterase: "True," or specific cholinesterase is found mostly in nerves, red blood cells, and skeletal muscles; and "Pseudocholinesterase" which exists in serum (plasma) and the liver. Both are inhibited by organophosphates but the plasma cholinesterase is attacked first, sparing nerve synapses. Only after 50-70% reduction of plasma cholinesterase do nervous system symptoms appear.

## ***Poisoning Symptoms***

Mild poisoning causes fatigue, dizziness, headache, nausea, sweating, salivation, respiratory difficulty and diarrhea. Higher levels of exposure generate marked weakness, incontinence, convulsions and loss of consciousness. Lethal exposures cause death by respiratory paralysis. Signs of injury may appear within moments and will not usually be delayed longer than 12 to 24 hours if there is significant exposure. Organophosphates do not accumulate, but repeated exposures without sufficient recovery time for cholinesterases can lead to clinical poisoning.

True (red cell) cholinesterase is produced at a rate of 1% per day. Plasma pseudocholinesterase regenerates up to 25% within a week.<sup>1</sup> Thus, diminished red cell cholinesterase may reflect chronic exposure, while lowered plasma cholinesterase demonstrates more acute toxicity. There are laboratory normal ranges for cholinesterase values, but decrease from a pre-exposure baseline is the most meaningful indication of poisoning.<sup>2</sup>

We measured plasma pseudocholinesterase values in a group of farmers and agribus-

*(Continued next page)*

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Dr. Helmers is in private family practice at the Family Medicine Clinic and Ms. Dykstra is director of nurses at Osceola Community Hospital, both in Sibley. Mr. Kemp was formerly Iowa State University Extension Service Director for Osceola County.



TABLE 1  
MEAN PLASMA CHOLINESTERASE LEVELS (units/ml)

Group	N	Pre- Post-Exposure	Mean Difference	Std. Error of Difference	P	Percent Change
Farmers	71	3.62 3.57	-0.05	0.035	0.14	-1.4
Agri-business Workers	28	3.80 3.66	-0.15	0.044	0.003	-3.9
TOTAL	99	3.67 3.59	-0.08	0.028	0.006	-2.1

iness workers prior to the corn planting season and again near the end of corn planting.

### Risk Assessment

In 1986 the Osceola Community Hospital in Sibley, Iowa, conducted a general Wellness/Agricultural Occupational Risk Assessment of 113 unselected volunteer farmers and agribusiness workers. A commonly expressed con-

ratory of Clinical Medicine in Des Moines, Iowa.<sup>3</sup>

The statistical significance of the mean difference between the pre- and post-exposure plasma cholinesterase values was tested using the t-statistic. Probability, P, values of less than 0.05 were taken as indicative of a statistically significant difference.

### Findings

The plasma cholinesterase levels demonstrated a mean decrease from pre-exposure to post-exposure (Table 1). For the entire group there was a significant drop of 2.1% (P = .006). If the farmers are separated from the agribusiness workers, however, there is a nonsignificant reduction of 1.4% for the farmers (P = 0.14). The agribusiness workers' average levels dropped 3.9% (P = .003) thus accounting for most of the decrease for the total group.

Figures 1 and 2 show the distribution of changes in plasma cholinesterase values. More values decreased than increased for both groups, but it is apparent a greater percentage of agribusiness workers experienced reductions.

Our survey asked about 14 specific symptoms. The greater proportion of all participants indicated "seldom" or "never" for all symptoms. In symptomatic persons there was no corresponding cholinesterase decline. Other studies have shown that symptomatic complaints bear little relationship to cholinesterase inhibition until enzymatic activity is reduced by nearly 70%.<sup>4-6</sup> There is considered to be little, if any chronic toxicity in the absence of acute injury for carbamates and organophosphates.<sup>7</sup> Thus, there seems to be no evidence for real toxicity in the 99 farmers and agribusiness workers studied.

We surveyed use of 10 safety practices. This group of farmers and agribusiness workers utilized little more than simple hygienic

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*'The economic dependence on pesticide use overshadows health worries for our group.'*

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cern was exposure to toxic farm chemicals. Consequently, we set out to study acute toxicity of organophosphate and carbamate pesticides since these substances could be reflected by measuring serum pseudocholinesterase levels.

Baseline cholinesterase levels were drawn from 116 persons on April 5, 7, 8 and 11, 1988. All participants were questioned regarding exposure prior to testing to insure minimal exposure at baseline. Participants were given a stamped postcard to return after completion of pesticide use, reporting start and finish dates. Appointments for second blood tests varied according to the time of chemical application. Ninety-nine persons returned for the second test. These participants also completed a survey on symptoms, personal safety precautions and attitudes regarding farm chemicals.

The remaining 17 persons did not use pesticides for various reasons and were not retested. Serum pseudocholinesterase values were measured photometrically by the Labo-

FARMERS (N=71)  
DISTRIBUTION OF CHANGE PLASMA  
CHOLINESTERASE LEVELS

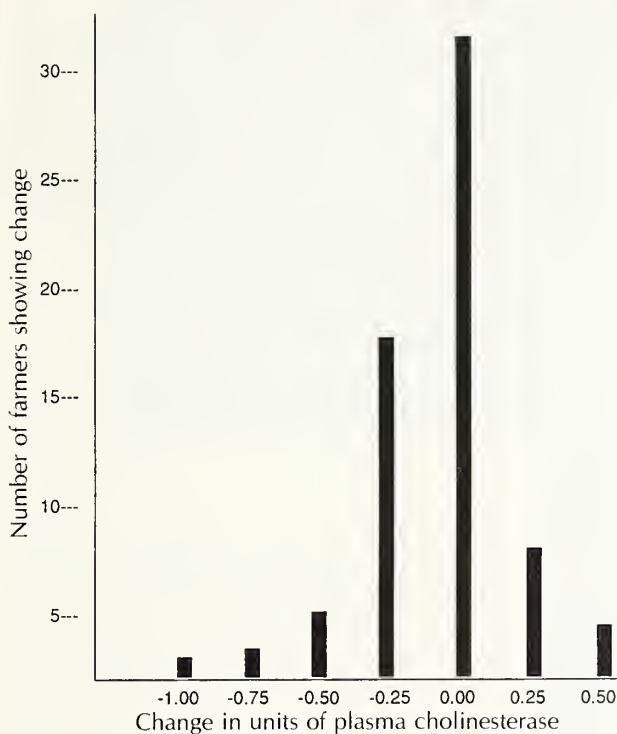


Figure 1. Post-exposure vs. pre-exposure plasma cholinesterase level.

AGRIBUSINESS WORKERS (N=28)  
DISTRIBUTION OF CHANGE PLASMA  
CHOLINESTERASE LEVELS

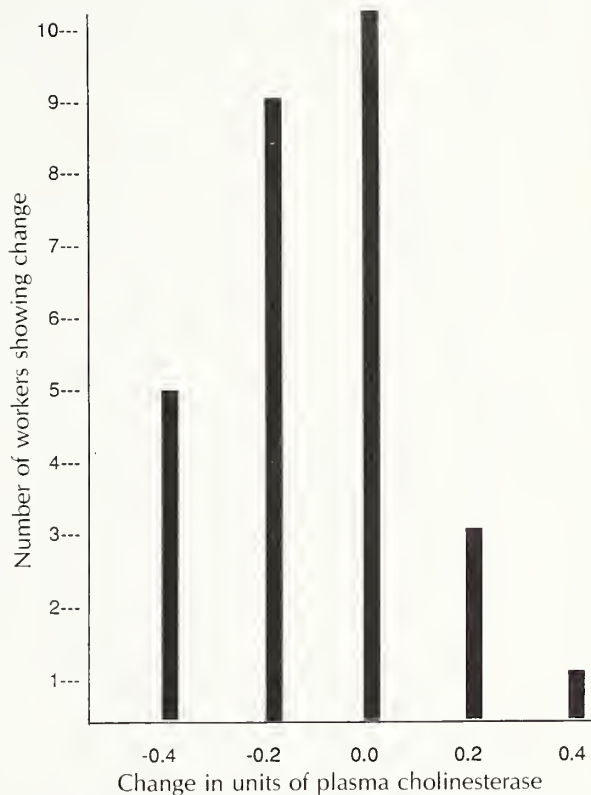


Figure 2. Post-evaluation vs. pre-evaluation plasma cholinesterase level.

measures for their own protection. Bathing and changing to clean clothing were chosen by nearly all as safety measures they actually used. Nearly all tried to avoid breathing pesticide dust, mostly by standing upwind; but approximately 30% did not read labels and nearly half did not wear rubber gloves. Hardly anyone used goggles or respirators.

There was a difference in use of simple skin protection between farmers and agribusiness workers. In the farmers, 83% wore a hat or cap and 76% wore a freshly laundered, long-sleeved shirt. For agribusiness workers, the numbers were 43% and 25%, respectively. This variation in long-sleeved shirt use is striking since it is nearly 3-fold. While such differences of use might reflect workplace temperature, the result may be an important factor in toxicity. The agribusiness workers demonstrated a statistically significant cholinesterase reduction but the farmers did not. Skin is known to be the main route for absorption.<sup>8</sup>

## Concern Voiced

One farmer's level dropped by 1.1 unit/ml (22%). Another had a decrease of 0.7 units/ml (15%). The first farmer reported fatigue and chest pain during the application season, but no other symptoms were noted. This person followed all safety practices except goggles, respirator and long-sleeved shirt. The second farmer reported no symptoms and used all practices except goggles and respirator. No single agribusiness worker experienced a marked drop in plasma cholinesterase level.

Our group voiced concern about the health effects of these chemicals. The vast majority (87%) of all participants are concerned about their health. A noteworthy minority (44%) of both groups believes ground water is being polluted. There is difference of opinion on safety of farm chemicals if used strictly according to direction, with agribusiness work-

(Continued next page)



ers showing more skepticism (55% doubting safety vs. 40% of farmers).

Despite health and pollution concerns, only 17% of the entire group would ban farm use and a scant 7% would ban all uses. The economic dependence on pesticide use overshadows health worries for our group. Of the farmers, 44% have used these chemicals 20 years or longer.

We learned there are differences between farmers and agribusiness workers in their use of information resources. Farmers are much more likely to utilize extension programs (48% vs. 29%) and read farm magazines (31% vs. 10%). Agribusiness workers rely more on word of mouth (43% vs. 21%). About half of both groups listed the pesticide label as an important source for information. The most chosen source for both groups (86% of farmers and 71% of agribusiness workers) was the grain elevator or chemical supplier.

## Comments

Despite widespread knowledge of the dangers of carbamates and organophosphates, deaths and poisonings continue to occur.<sup>9-12</sup> Formulators of pesticides are often monitored as part of industrial safety surveillance.<sup>4</sup> There are fewer studies of applicators of pesticides and especially rare is a study of independent farmers.<sup>13</sup> All such programs, however, have documented the need for baseline pre-exposure cholinesterase levels.<sup>5</sup>

We found no significant drop in serum cholinesterase levels among a group of 71 farmers during rootworm insecticide application with corn planting. A group of 28 agribusiness workers did show a small, but statistically significant decrease (-3.9%) during the same time. Our survey indicated the farmers better covered their skin. Despite widespread concerns among both groups about health injury by these chemicals, there was little use of protective devices. There was practically no interest in banning pesticides. The best opportunities for educational intervention would appear to be at the local chemical dealer and in labeling of pesticide products.

## References

References noted in this article are available either from the authors or the editors of *IOWA MEDICINE*.

## Manuscript Information for Authors

Papers submitted must be double spaced; triple spaced between paragraphs on 8½ x 11 pages. A title page and a short abstract summarizing the article should be included. Due to space constraints, brief papers (ideal length is 5 double spaced typewritten pages) have a better chance of timely publication. If possible, 2 copies should be submitted.

All persons designated as authors of a particular article should have participated sufficiently in the work to take public responsibility for the concept.

The paper will be reviewed by the publications committee and a follow-up letter will be sent to the author, either accepting or rejecting the article.

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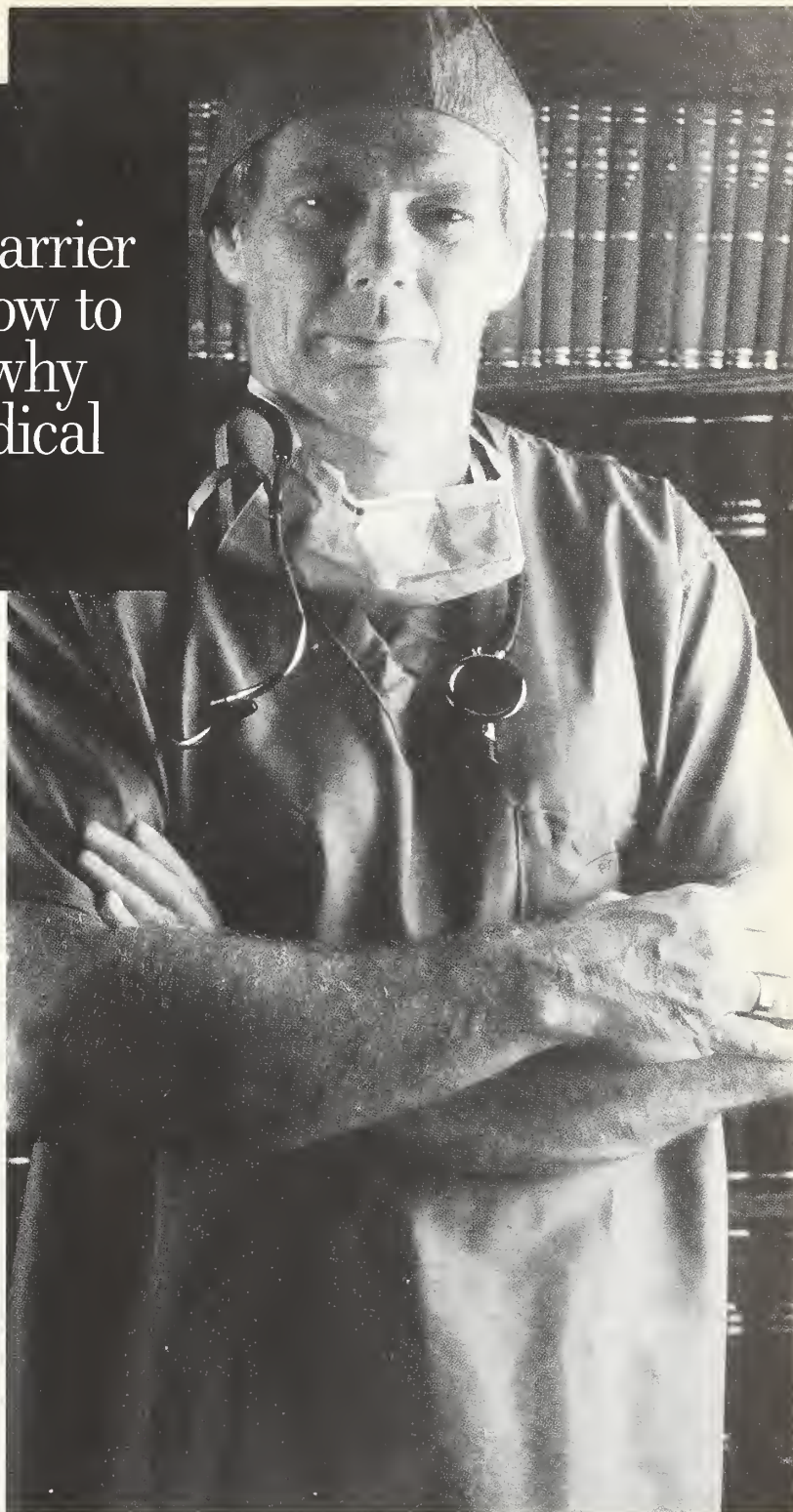
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# The Case of the Man With Bleeding Gums

**A** 65-YEAR-OLD MAN was admitted to the hospital with thrombocytopenia, splenomegaly and an abnormal chest x-ray.

## *Clinical Findings*

### **John Bennett, M.D., Internal Medicine:**

He was well until 12 weeks earlier when he developed generalized weakness, fatigue and anorexia. Splenomegaly was noted 6 weeks later; 2 weeks before admission he developed dull low back pain and bleeding gums. At that time, platelet count was 22,000 per  $\mu$ l, hemoglobin 15 gm per 100 ml, and white blood count of 4,400 per  $\mu$ l. He lost 22 pounds and 2 days before admission developed scalp pruritus and mild hoarseness. He did not have fevers, chills, sweats, headaches, visual disturbances, cough, chest pain or changes of bowel habits.

There was a left inguinal herniorrhaphy and tonsillectomy at age 5, right inguinal herniorrhaphy at 42, left carpal tunnel release at 55 and another on the right at 60. Five years earlier he developed intermittent atrial fibrillation and was hospitalized once for congestive heart failure. One year later he had several transient episodes of vertebro-basilar insufficiency. His medications were nadolol, acetaminophen and propoxyphene. There were no allergies. A lifelong welder, he was married; had 4 adopted children. He rarely drank alcohol and smoked 3 packs of cigarettes per day for 40 years, quitting 2 years earlier.

He appeared older than 65. Temperature was 36.5°C, pulse 80, respiration rate 16. Blood pressure was 130/60 mmHg and weight 94.5

kg. There were multiple small ecchymoses on the legs and left thigh, and petechiae on the gingivae. There were no palpable lymph nodes. The lungs were clear and heart examination was normal. The liver was tender and easily palpable with a 15 cm span and the spleen was felt 3 cm below the left costal margin. The genital and rectal examinations were normal. Stool was guaiac negative. The midthoracic to lumbar spine was tender to percussion but no structural lesions were found. The neurological examination was normal except for ataxia with cerebellar testing. His gait was broad based and unsteady.

The urine had 1+ protein. White blood count was 5700 per  $\mu$ l, hemoglobin 15.3 gm per 100 ml, hematocrit 45%, and platelet count was 22,000 per  $\mu$ l. The white blood cell differential was normal. Prothrombin time was 14 seconds and partial thromboplastin time was 25 seconds. Sodium was 138 mmol per liter, potassium 4.6 mmol per liter, chloride 98 mmol per liter, carbon dioxide 30 mmol per liter, blood urea nitrogen 30 mg per 100 ml, and creatinine 1.2 mg per 100 ml. Total protein was 6.1 gm per 100 ml, albumin 3.9 gm per 100 ml, calcium 14.8 mg per 100 ml, phosphorus 3.6 per 100 ml, cholesterol 162 mg per 100 ml, glucose 107 mg per 100 ml, uric acid 13.3 mg per 100 ml, LDH 506 U per liter, AST 60 U per liter, total bilirubin 0.7 mg per 100 ml, and alkaline phosphatase 203 U per liter. Iron studies and thyroid function tests were normal. HIV antibody was negative.

Chest x-ray showed 2 right lung masses. Plain films of the lumbar-sacral spine were only suggestive of degenerative joint disease. Head computed tomographic scan (CT) was unre-

This material is furnished by the Department of Internal Medicine, University of Iowa College of Medicine.

markable. The bone marrow was 60% cellular with moderately increased megakaryocytes and without evidence of malignancy.

Intravenous normal saline, furosemide and allopurinol were started. On the 4th hospital day he developed substernal chest pain with EKG changes consistent with lateral wall ischemia. Diltiazem and nitropaste were started. Peak CPK was 83 U per liter with 11% MB fraction. On the 6th hospital day an abdominal CT showed multiple lesions throughout the liver and spleen with para-aortic and retrocaval adenopathy. One week later a CT guided liver biopsy was obtained but not diagnostic. On the 20th hospital day prednisone 100 mg daily was started because of persistent thrombocytopenia.

On the 22nd hospital day, while being examined by fluoroscopy for a lung biopsy, he again developed angina and the procedure was cancelled. Five days later a CT guided biopsy of the retroperitoneal nodal mass was obtained and it too was not diagnostic. He desired to return home and was discharged one month after admission with a platelet count of 166,000 per  $\mu$ l and calcium 9.4 mg per 100  $\mu$ l. Medications included atenolol 100 mg daily, diltiazem 90 mg 4 times daily, nitropaste 1 inch topically 3 times daily, prednisone 100 mg daily, allopurinol and furosemide.

### **Cardiac Catheterization**

Two weeks later he returned for follow-up. During the interim he experienced more angina which on one occasion lasted 40 minutes. He was readmitted to the hospital for a cardiac catheterization. Platelet count was 115,000 per  $\mu$ l, calcium 8.7 mg per 100 ml and LDH 167 U per liter. During the procedure he developed angina with new EKG change consistent with an acute inferior wall infarction. Multiple attempts to pass a guide wire across the putative stenotic lesion were unsuccessful and complicated by ventricular fibrillation. Resuscitative efforts were successful but prolonged. The peak CPK was 231 U per liter with 18% MB fraction.

On the 7th hospital day, because of recurrent angina, he underwent an uncomplicated coronary artery bypass grafting and an inguinal lymph node biopsy (fatty infiltration). The postoperative course was unremarkable until day 20 when the chest x-ray showed a left lower lobe infiltrate and small pleural ef-

fusion. A thoracentesis was done but complicated by a pneumothorax and a chest tube was placed. The pleural fluid was a sterile exudate and broad spectrum antibiotics were started.

Gradually the pleural effusion increased in size and on the 35th hospital day a liter of pus was drained and cultures grew *Bacteroides fragilis*. One month later the patient died. During that period he became depressed and refused any further diagnostic and therapeutic maneuvers. An autopsy was performed.

### **Clinical Discussion**

**Charles Riggs, Jr., M.D., Internal Medicine:** Weakness, anorexia and fatigue present for 12 weeks are general and nonspecific findings, indicative of a variety of illnesses and not helpful with diagnosis. Splenomegaly was noted for about 6 weeks and low back pain for 2 weeks. There was a 2-day history of pruritus of the scalp and of hoarseness. A 22 lb (11 kg) weight loss was appreciated, probably over 2-3 months, representing likely 10% loss of body mass. There were no fevers, chills or other suggestive systemic or localizing symptoms. The past history was remarkable for history of smoking 3 packs of cigarettes per day for 40 years (120 pack-years, a substantial exposure), congestive heart failure and vertebro-basilar insufficiency. Medications were nadolol, acetaminophen and propoxyphene, ones not often associated with thrombocytopenia.

Significant physical findings included normal vital signs, petechial hemorrhage and ecchymoses, indicative of excessive bleeding tendency of small vessels from trauma in the context of thrombocytopenia. No palpable peripheral lymph nodes were appreciated, lungs were clear and heart was normal. The liver was tender and felt to have a span of 15 cm and a spleen tip was palpable 3 cm below the left costal margin. Of interest, a CT scan of the abdomen later showed a spleen extending to the inferior left kidney pole, suggesting a much larger organ than that felt. No occult fecal blood was noted, the lumbar spine was tender to percussion and ataxia with a broad-based gait was discovered. Of historical importance is the reported history of rare alcohol exposure, which should be independently documented, and the lack of any history about venereal disease, which must also be assumed to be non-contributory.

*(Continued next page)*



Laboratory results of note include the mentioned blood counts, a urinary protein of 1+ on dipstick and normal coagulation parameters. The normal albumin, cholesterol and creatinine exclude nephrotic syndrome. Hypercalcemia to 14.8 mg/dl, with phosphate 3.6 mg/dl was found, along with hyperuricemia. Liver function testing revealed elevated LDH, alkaline phosphatase and AST (SGOT), with

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*'True acute ITP is a disease of children and young adults, with a distinct female predominance.'*

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normal bilirubin. Thyroid and iron studies were normal, and HIV screen negative. The chest X-ray showed 2 nodular masses and, probably, hilar nodes. Abdominal CT imaging had enlarged liver and spleen, with suggestive hypodense lesions throughout both, and brain CT was normal. A bone marrow failed to reveal cause for isolated thrombocytopenia, being free of neoplasm, although there was mild increase in number of megakaryocytes. The lack of mention about the status of red and white blood cell precursors, and about the absence of granulomata in the marrow, dictates assuming these were unremarkable.

He suffered one, perhaps 2, acute myocardial infarctions during hospitalization. Pleural effusion ultimately evolved to an empyema. Multiple unsuccessful attempts were made to obtain diagnostic tissue specimens. Prednisone at high doses was begun, with resolution of thrombocytopenia and hypercalcemia. He was maintained on atenolol, diltiazem, nitroglycerin ointment, allopurinol, furosemide and the prednisone. Subsequent bouts with cardiac ischemia ultimately resulted with bypass grafting, with the pleural complications as noted. He died later, apparently of progressive "dwindles" and without specific diagnosis.

I focus on thrombocytopenia as the pivot point because that entity produced the clinical syndrome which caused the patient to come to medical attention, and seemed to respond promptly to a very suggestive course of corticosteroid therapy. Platelet disorders with falling or low counts occur by one or more of

3 mechanisms: Increased utilization, decreased lifespan or deficient production. Deficient production can be excluded by virtue of the bone marrow findings, although a history of alcohol use would bring to mind nutritional factors (vitamin B-12, folic acid or protein-calorie deficiencies) and the direct marrow-toxic effects of ethanol. There was also no mention of bone marrow infiltration by neoplasm or by macrophages, as might be expected with storage diseases. Sepsis (viral, bacterial, fungal) can acutely depress marrow function, but the clinical history is not in keeping with that as an early event.

Increased platelet utilization can be readily eliminated from the history. Common causes of increased utilization are active bleeding and non-immune destruction (hyperdynamic circulation from fevers, shear forces from artificial or damaged heart valves). In the case of active bleeding in which massive transfusion has taken place, dilutional thrombocytopenia must be considered, and such finding would best be treated with prompt platelet transfusions.

The majority of primary thrombocytopenic episodes involve accelerated loss of platelets, exceeding the capacity of the bone marrow to produce new, viable platelets. The 3 categories of accelerated loss for consideration include thrombocytopenia, complicating burns, sequestration by liver, spleen or other vascular mass and the immune thrombocytopenias. Burns can be readily excluded from the history, and, while sequestration is not totally impossible, I believe it was only a minor component of a multi-system disorder.

Immune thrombocytopenias (ITP) are first classified as acute or chronic. True acute ITP is a disease of children and young adults, with a distinct female predominance. It has a variable but usually self-limited course, with no major bleeding episodes or chronic sequelae. Chronic ITPs are a heterogeneous collection of disorders, affecting typically older persons, with no particular sex predilection. The commonest categories, relevant to this discussion, include drug-dependent, isoantibody-mediated, idiopathic and secondary ITPs.

Drug-dependent ITPs are characteristically seen with quinidine, sulfonamides, thiazide diuretics, and beta-lactam antibiotics. The mechanism of platelet destruction appears to be adsorption of the offending agent to the

platelet membrane, induction of autoantibodies against the drug-membrane hapten and destruction of drug-coated platelets by the reticuloendothelial system. Occasionally, isoantibodies to normal platelet antigens may arise in this setting. True isoantibody destruction is defined by post-transfusion purpura. This disorder is still seen with frequency, and should be considered in middle-aged women who receive a peri-operative transfusion, then become thrombocytopenic 3-10 days later. Often, the confirmatory history of transient peripartum or neonatal thrombocytopenia can be obtained well before platelet isoantibody screening results are returned.

Idiopathic ITP, also called chronic ITP, remains a diagnosis of exclusion. A careful drug history and search for such causes as noted above are required. Physical findings of adenopathy, splenomegaly or hepatomegaly dictate picking a disorder other than chronic ITP. Of diagnostic and etiological interest in chronic ITP are the occasional associated laboratory findings of high acid phosphatase and presence of autoantibodies to thyroid and gastric antigens. While a high platelet-associated IgG is compatible with the diagnosis of true chronic ITP, low levels do not exclude this possibility. The present history is sufficiently documented to allow elimination of each of these categories as the source of ITP in this patient.

The largest category of ITPs is termed secondary ITP. Chief causes are infections (HIV, malaria, protozoans, fungi), collagen vascular (SLE), sarcoidosis, thyroid disease, myasthenia gravis and malignancies. HIV and thyroid disease testing was negative. Although a chest X-ray showed 2 right lung masses, these are not characteristic of sarcoid, thymoma or a particular infection; likewise, there are few other signs of infection in the history or physical examination. Hypercalcemia is noted, but no other sarcoid testing was mentioned. Few details allowing one to feel comfortable with SLE or other collagen vascular disease are offered, although the prompt and complete response to corticosteroids certainly is in keeping with such disorders. However, I believe that the best unifying diagnosis for the platelet disorder, which also encompasses the findings of hepatosplenomegaly, "B" symptoms, hypercalcemia, apparent metastatic lesions in the liver and spleen and a gratifying response to prednisone, is some type of neoplasm.

The association of cancers and thrombocytopenia is well-established. Although chronic lymphocytic leukemia was been known as a cause of both ITP and autoimmune hemolytic anemia, lymphomas and various solid tumors comprise a large number of the reported cases and series. Peripheral neuropathies, such as seen in this patient, have been reported with ITP, and ITP may be the presenting sign of serious malignancy.

I favor the diagnosis of lymphoma as the likely cause for the constellation of symptoms in this case. Primary pulmonary lymphomas have been noted in association with ITP. Both

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*'Peripheral neuropathies such as seen in this patient, have been reported with ITP, and ITP may be the presenting sign of serious malignancy.'*

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Hodgkin's and non-Hodgkin's lymphomas can produce humoral hypercalcemia, in the absence of bony disease. The pattern of hepatic and splenic metastases, as might occur with primary pulmonary lymphomas, is an expected finding. The prompt relief of hypercalcemia with prednisone would be more characteristic of the rapid response of lymphoma to steroids than of the usually slower response of solid tumor-mediated hypercalcemia.

Of the various lymphomas which might be selected, the diagnosis of lymphocyte-depleted Hodgkin's disease is attractive given the patient's age, probable pulmonary site of origin, pattern of dissemination and presence of the paraneoplastic syndromes (hypercalcemia, neuropathy). However, a non-Hodgkin's lymphoma, such as diffuse large-cell or immunoblastic types, could be considered equally likely. These latter disorders may more regularly involve the bone marrow than Hodgkin's disease, but this difference is slight enough as not to be helpful. I suspect the autopsy demonstrated partially responding Hodgkin's disease, with no direct bone or brain invasion by lymphoma.

*Anatomical Diagnosis:* Large cell non-Hodgkin's lymphoma.



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The Editor Comments



## Concern for the Mentally Ill

*We cannot afford to postpone any longer a reversal in our approach to mental affliction. For too long the shabby treatment of the many millions of the mentally disabled in custodial institutions and many millions more in communities needing help has been justified on grounds of inadequate funds, further studies and future promises. We can procrastinate no more. The national mental health program and the national program to combat mental retardation herein proposed warrant prompt congressional attention.*

— John F. Kennedy (1917-1963)

Message to Congress on Mental Health

February 5, 1963

**M**ENTAL ILLNESS DOES NOT EQUATE now with social ostracism as it did in years past. President Kennedy's message to congress aided efforts to change the plight of the mentally ill . . . the retarded, the psychotic and those with short term alterations of the psychic balance.

During my pediatrics training years I had an experience which has never been erased from my memory. I visited a state institution for the mentally retarded. In one secluded area I witnessed severely retarded adults who were kept in cells — sequestered like animals, barely clad, huddled in a fetal position totally oblivious to reality. I had read of such, but little did I realize conditions such as those existed in the late 1940s.

History reveals the disgraceful treatment of the mentally ill. They were chained or caged. Others deemed harmless were allowed to run at large. True, hospital care in general was atrocious in the 1700s. Jacobus-René Tenon, in 1788 wrote of conditions in the hospitals of the time, including the description of the old 'Hôtel' Dieu of Paris.

As many as 4-6 patients shared a bed, others were crowded on pallets or huddled on heaps of filthy, foul-smelling straw amongst the vermin and rodents. The fabled *Allgemeines Krankenhaus* in Vienna and the great Moscow Hospital were no better. Further back in history (1547) we read accounts of the hospital, *Bedlam*, (Hospital of St. Mary of Bethlehem) in London, one of the earliest hospitals for the insane. To further insult the patients, the public for a fee was permitted to view the unfortunate inmates like animals in a zoo.

The late 1950s, early 1960s ushered in new concepts in management of the mentally ill. Chlorpromazine had a profound effect upon treatment of patients in the numerous hospitals and sanatoria. Dramatic improvements prompted the release of many mental patients for further follow-up as outpatients. Likewise, a great number of the mentally retarded were released to more freedom of life. Unhappily, however, this change of attitude created a major problem. Many of the mentally ill had no where else to go and now roam the streets of our cities as a segment of the homeless.

Nevertheless, care and treatment of the mentally ill has come a long way. Society has accepted mental illness in a less discriminated manner; no longer is there an associated stigma to alterations of the mind. New methods of care are forthcoming. The message to congress by President Kennedy has been answered, to some extent. Governmental programs have aided in the understanding and care of the mentally ill. Mental health is regarded as more equal to physical health in the minds of the public as well as the medical profession. — M.E.A.



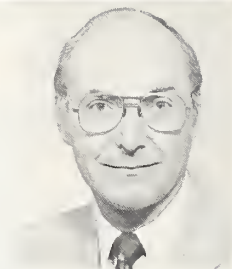
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## Richard M. Caplan, M.D.

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CME Notebook

# Ethics in CME



**I**T'S FUN, SOMETIMES, TO CREATE a title I think will mislead you. This time, I predict, I've succeeded. You probably think I'm going to make a pitch for practitioners to learn about medical ethics, that I will urge program planners to include the topic in their plans for courses or lecture series, or that I will urge practitioners to elect such courses, lectures, workshops, discussions or readings. Especially would I urge it, you might think, since we have a new faculty biomedical ethicist, and since our faculty recently decided to add to our required undergraduate curriculum an introductory sophomore level course on the subject.

Gotcha! — as I predicted. My title actually refers to ethical questions arising in the *process* of CME itself rather than its *content*. Here are some examples of such issues, or behaviors that some people argue should be considered “unethical” by either the provider or the prospective learner:

- allowing CME credit to be logged for an activity “irrelevant” to one’s practice (example: an anesthesiologist taking a workshop in colonoscopy)
- allowing credit for courses that have only 4 hours of contact per day at a location that is conspicuously and clearly a vacation locale (cruise ship, winter ski resort, maybe even a river-plying gambling ship)
- accepting free travel, lodging and meals for oneself and one’s guest to travel to a distant, attractive vacation spot — all this from a pharmaceutical manufacturer who wants to expose you to a brief CME course that introduces the basic pharma-

cology and results of clinical trials of its new product

- drug companies enticing faculty with high honoraria or research grants if they will go on the speaker’s circuit and tout the company’s drug
- accredited providers offering activities for Category 1 credit that have not been planned, presented, or evaluated in a manner consistent with the rules that govern such credit
- a registrant signing in at an activity but shortly leaving, beckoned by a beeper, a beach, a museum or a shopping mall
- advertising that masks, or omits, the educational objectives

These examples of possible unethical behaviors are not of my inventing. Rather, they were presented during a panel discussion at a meeting of medical school CME directors, a discussion I assure you was lively. So lively that the group decided it needed to give more attention to the issue, and possibly to the behavior of its members, at a later meeting. I’ll not attempt to summarize the reactions, but invite you to decide what *you* think about conflicts of interest, truth in advertising, and admission of ignorance. You might decide your answers by reaching into your heart, gut, or wherever you store your vague intuitions or firm prejudices. Or maybe you want to reach into your brain, the locus of your *rational* ability. That way you can reason about these matters using the vocabulary, arguments and logic appropriate to the discipline of ethics. If you need help, maybe you’d like a course or individualized project to arm you with enough content to examine the ethical questions that reside in the process of CME.

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Dr. Caplan is Associate Dean for Continuing Medical Education at the University of Iowa College of Medicine.



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REASONABLE MODALITIES OF CARE”
- “CHALLENGES IN PEDIATRIC PAIN  
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EPIDURAL INFUSION SYSTEMS AND  
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# Severity Ratings and Quality Concerns

**H**EALTH CARE FINANCING ADMINISTRATION (HCFA) quality review guidelines require PRO physician reviewers to assign a severity rating of I, II or III to quality concerns in care of Medicare patients.

Severity level I is defined as "medical mismanagement *without the potential* for significant adverse effects on the patient;" severity level II as "medical mismanagement *with the potential* for significant adverse effects on the patient;" and level III as "medical mismanagement *with significant adverse effects* on the patient." HCFA defines "significant adverse effect" as unnecessarily prolonged treatment, complications or readmission; or patient mismanagement that results in anatomical or physiological impairment, disability or death.

The following hypothetical case illustrates how severity level guidelines are applied.

## Case Study

A 68-year-old male is admitted to an acute care facility with shortness of breath and arrhythmia. His EKG shows a myocardial infarction of undetermined age and premature ventricular contractions. A chest x-ray shows a moderate increase in vascularity.

The patient is started on an IV of Ringer's Lactate at 75 cc per hour and IV Lasix 40 mg daily, a regimen continued for the duration of his stay. Renal function and electrolyte studies ordered the first day are not repeated.

The physician makes progress notes every 2 days; they indicate patient improvement. There is no mention of the patient's progres-

sive rise in CPK and LDH enzymes and no determination is made of a CPK-MB fraction.

Nursing notes do not portray improvement. They document severe shortness of breath, restlessness, the fact the patient has to be in a chair to breathe and that he refuses to go to bed because a sense he will "smother."

On day 4, the physician prescribes IV antibiotics to treat the breathing problems, which the physician attributes to pneumonia. By day 6, the patient's weight has risen from 122 to 143 pounds. The physician discharges the patient on that day, believing he can regain his strength more quickly at home. The patient is readmitted with acute congestive heart failure 48 hours after discharge.

## Reviewer Comments

Three quality concerns are noted. First, the patient was not adequately evaluated during his initial stay. Laboratory tests including renal function and electrolyte studies, cultures and additional x-rays were omitted or were not documented. Second, the illness was misdiagnosed. Missing laboratory results would have helped the physician precisely identify congestive heart failure or pneumonia. Third, the patient was discharged prematurely. His breathing difficulties and inordinate weight gain warranted acute level treatment.

Since this patient was readmitted 48 hours after discharge with acute congestive heart failure (a significant adverse effect), a severity level of III is justified. The potential for significant adverse effects existed even without the onset of acute congestive heart failure. Had the second admittance not occurred, a severity level of II would have been appropriate.

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This column is the first in a series which will be provided by the Iowa Foundation for Medical Care. This month's author is Richard Perry, M.D., IFMC president.



## The Geriatric Market

**P**HYSICIANS AND OTHER HEALTH CARE providers sometimes ignore the elderly market. Their reasoning is, "I am not a gerontologist. Of course I will see the older patient, but that's not my area of specialization."

With a few creative changes, practitioners can attract a large untapped market. The elderly are rapidly becoming the largest age group in our society. Currently, 12.3% of Americans are over age 65. This represents more than 30 million Americans. In the next decade, the ranks of elderly will grow by more than 5 million. By 2030, those over 65 will comprise almost 22% of our population. The elderly population is definitely a growth market!

As with any business, the goal of a medical practice is to satisfy the needs of the consumer. Tailoring your practice to the needs of the older American is obviously a logical step in meeting market demand.

To serve the elderly you should recognize not all elderly have the same needs and desires. Second, recognize the common denominators between the various elderly market segments. Almost universally, elderly individuals are looking for quality care. How is this quality measured? By judging how well the health care provider satisfies related needs.

In focus groups conducted by McGladrey & Pullen, the number one concern of the elderly was that the health care provider have a caring attitude. To elderly people, there is a direct correlation between quality care and a positive caring attitude. Other factors mentioned included the need for convenient office hours, office accessibility and price.

What does this mean for your practice? One group of ophthalmologists offers blue-

berry muffins and advertises this conspicuously in their ads for laser surgery. This conjures up a homey, caring image for a practice. Another group of physicians provides patient transportation. Many people think this is a gimmick; however, it does demonstrate a caring attitude.

For the practitioner, obviously there must be substance behind these programs. How do you target the elderly? You satisfy their needs. This means developing specialized programs that address a specific problem or need. A mental health practice may provide bereavement counseling in group therapy sessions. Individualized counseling may not be cost effective for the provider or the patient. Therefore, new and innovative approaches to practice may be necessary.

An internist may need to place more emphasis on patient education on the disease processes that affect the elderly. Internists should address how elderly with diabetes deal with necessary lifestyle changes. They may also need to address mental health problems. Dementia comes in many forms; internists may want to become more familiar with depression and alternative treatment programs.

Even sports medicine, cardiac rehabilitation and wellness programs can be tailored to meet the needs of the elderly. Each specialty has its own unique programs which could be tailored to the needs of the elderly patient.

By demonstrating a caring attitude and tailoring programs to meet needs, the physician can target a large market.

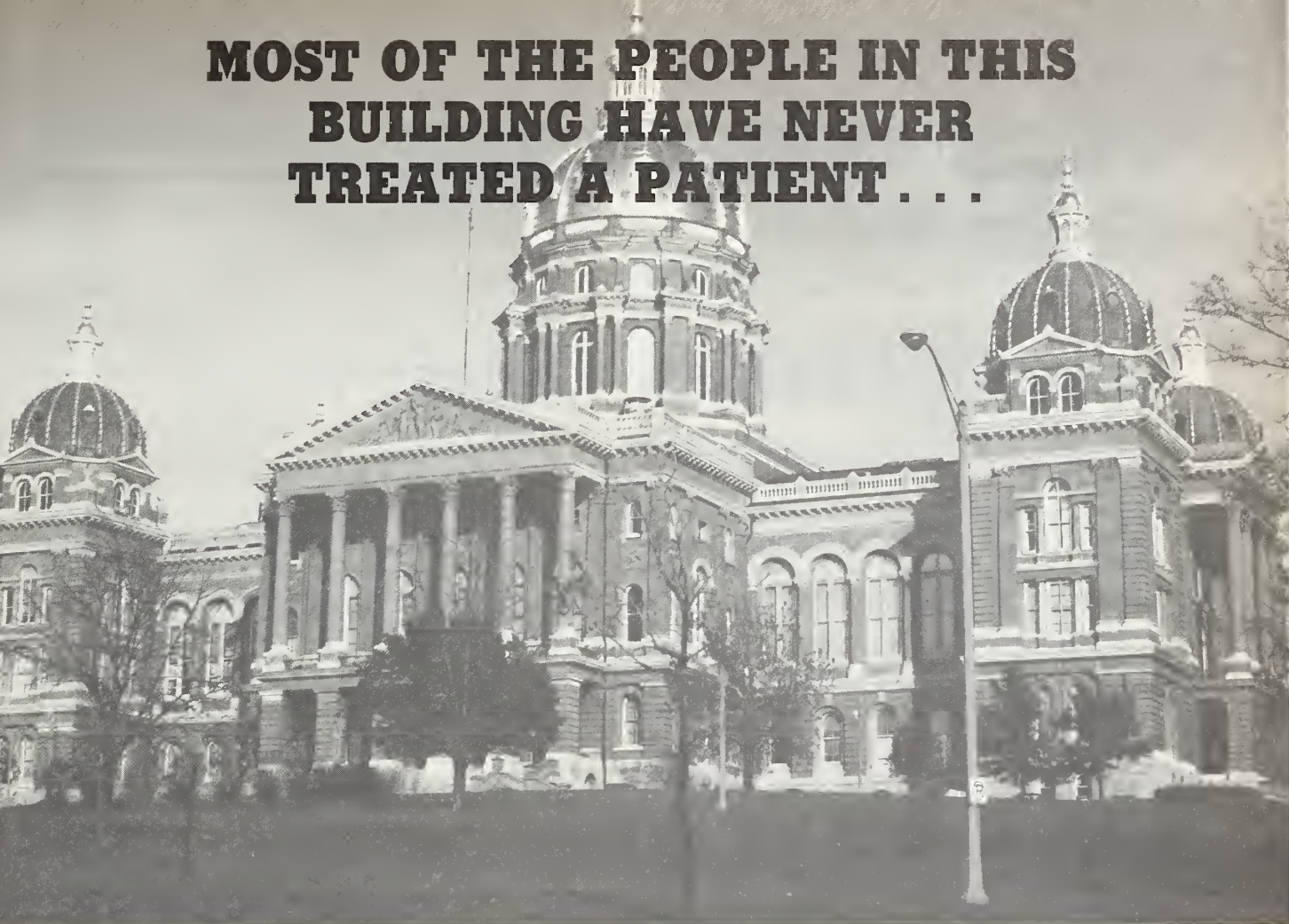
As Philip Kotler, marketing expert, stated, "Market share equates with success. The larger your patient base, the more apt you are to maintain your practice profitability."

We all want quality medicine. This is especially true of the elderly.

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This article was written by Stu Gaines, health care consultant with McGladrey & Pullen, Des Moines.

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## Sustained-Release Dosage Forms

OVER THE PAST 25 YEARS, new technologies for drug delivery have revolutionized the ability to optimize drug therapy with established therapeutic agents. New methods of drug delivery exist in such diverse areas as oral, transdermal, site-specific and implantable drug delivery systems. This article discusses the rationale for sustained-release delivery systems. The clinical availability and application of the preparations most frequently encountered and used by the practitioner, oral sustained-release and transdermal delivery systems is reviewed.

An overview of critical aspects of conventional drug delivery will facilitate an appreciation of the value of oral sustained-release preparations. Administration of a single dose of a standard immediate-release preparation with rapid absorption and elimination, causes serum concentrations approximating those in Figure 1. However, concentrations in the therapeutic range cannot be maintained for extended periods of time.

Figure 1 also represents what happens with the serum concentration if one tries to extend the time within the therapeutic range by increasing the dose. The period of time the drug concentration is in the therapeutic range increases but the risk of toxicity also increases due to excessively high concentrations early in the dosing interval.

Figure 2 illustrates serum concentrations when the drug is given at multiple doses using a constant dosing interval (i.e., 6 hours). While this method maintains therapeutic serum levels, there are obvious limitations. If the dosing interval is too short, high peak serum concen-

trations are obtained again risking toxicity. If the dosing interval is too long, subtherapeutic trough concentrations are possible with ensuing loss of therapeutic effect. Theophylline is an example of a drug which may exhibit this

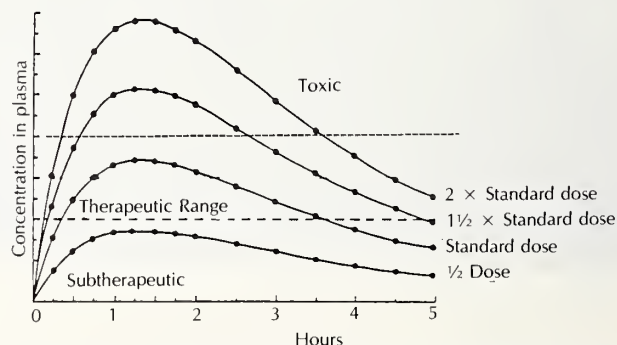


Figure 1. Representative plasma concentration vs. time of a drug with relatively short half life administered at various multiples of the standard dose.

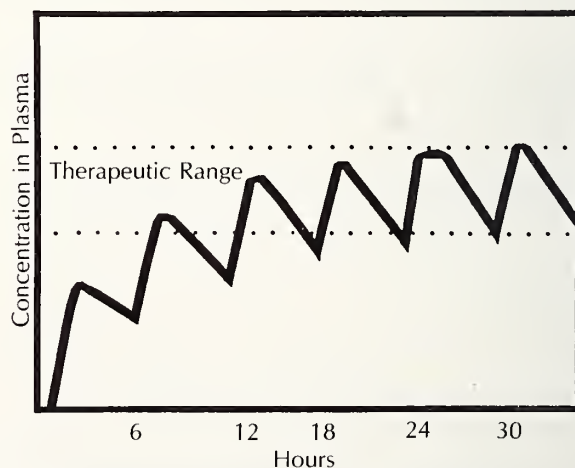


Figure 2. Representative plasma concentrations vs. time of a drug with relatively short half life administered at multiple doses using a constant dosing interval.

This article was written by Douglas Geraets, Pharm.D., and Timothy Burke, Pharm.D. of the University of Iowa College of Pharmacy. It was edited by John Kasik, M.D.

phenomena. Side effects of nausea, vomiting and tachycardia may be seen with high peak serum concentrations and "breakthrough" respiratory symptoms with subtherapeutic trough concentrations.

Patient compliance can be a problem in cases of multiple doses of drug throughout the day. Rates of compliance have been directly correlated with the number of drugs administered and frequency of doses administered (i.e., complexity of the regimen). The antiarrhythmic agent procainamide once required administration every 3 to 4 hours in the conventional tablet form due to its extremely short half-life (average  $\approx 3.3$  hours) in patients with normal renal function and cardiac function.

Due to the nature of many of the disease states treated with these drugs, adequate serum concentrations may mean the difference between remaining symptom-free and hospitalization. Sustained-release drug delivery can overcome many of the problems associated with the conventional release forms of drugs. Effective serum concentrations can be maintained while the patient is required to administer a minimum of doses.

### ***Sustained-Release Oral Dosage Forms***

In sustained-release delivery systems the oral route has received the most attention. The oral route is, and will continue to be, the primary means of drug administration due to ease of administration and wide acceptance by patients and practitioners. There is a vast array of dosage forms for oral drug delivery, ranging from liquids, capsules and tablets through various sustained release systems which have recently been introduced into clinical use.

Two major forms of sustained-release oral systems are the *diffusional* and *dissolutional* systems. Diffusional systems are regulated by the diffusion of the drug through an insoluble polymer. In these systems the drug is either contained in a reservoir surrounded by the polymer or incorporated directly into the polymer itself. Dissolutional systems are based on the theory that prolonged dissolution will result in prolonged absorption and consequently prolonged drug serum concentrations. The rate of dissolution and absorption can be controlled by coating the drug particles or granules with a slowly dissolving polymer or by pressing the drug into a slowly dissolving polymer matrix.

The coated granules can be pressed into tablets or placed into capsules. The coating on the granules varies in thickness allowing for different dissolution times between the granules. The greater the number of coating thicknesses the better the chance to maintain a constant serum concentration throughout the dosing interval.

It must be kept in mind that once the polymer is dissolved or destroyed all of the drug that was coated by the polymer will be available for immediate release and absorption. This can result in a "bolus" of drug being absorbed which can result in high serum concentrations and potential toxic symptoms. This can occur when dosage forms like sustained-release morphine tablets are pulverized and delivered by nasogastric tube. Some sustained-release preparations will be scored to allow for splitting of the tablets to allow dose titration. However, they should never be crushed, ground up or chewed as this may destroy the sustained-release characteristics of the product.

Table 1 (following page) contains a partial listing divided into therapeutic categories of sustained-release oral preparations found on the market.

### ***Individual Sustained-Release Oral Products***

One of the most widely publicized problems associated with the sustained-release preparations has been "dose dumping" which occurs with the Theo-24® brand of theophylline. The dissolution of the coating on the Theo-24® beads is pH dependent. The coating slowly dissolves at a pH of 6.8 but rapidly at pH > 7.4 (the approximate pH of the small intestine after a meal). This rapid dissolution of the beaded coating allows approximately half the daily dose to be absorbed within a 4-hour period, giving rise to excessively high theophylline serum concentrations. In fasting subjects Theo-24® is slowly and incompletely absorbed.

Food also markedly impairs the absorption from the Theo-Dur Sprinkle® (a bead filled capsule with pH independent dissolution) but has no effect on the absorption of Theo-Dur® tablets, Theobid®, Somophyllin CRT® or Slo-Bid®.

Theo-Dur Sprinkle® is completely absorbed in fasting subjects but less than one-

*(Continued next page)*



**TABLE 1**  
**PARTIAL LISTING OF**  
**SUSTAINED-RELEASE ORAL PREPARATIONS**

<i>Sustained-Release Cardiovascular Drugs</i>	
Controlled-Release Tablets	Controlled-Release Capsules
<b>Quinidine Sulfate</b>	<b>Disopyramide</b>
Quinidex	Norpace CR
<b>Quinidine Gluconate</b>	<b>Diltiazem</b>
Quinaglute Duratabs	Cardiazem SR
Quinamine	<b>Nitroglycerin</b>
Quin Release	Nitro-Bid
Duraquin	Nitrospan
<b>Procainamide</b>	<b>Isosorbide Dinitrate</b>
Procan SR	Dilatrate SR
Rhythmin	Iso-Bid
Pronestyl SR	<b>Verapamil</b>
<b>Propranolol</b>	Calan SR
Inderal LA*	Isoptin SR
<b>Nitroglycerin</b>	
Nitrogl	*No more effective than the same
<b>Isosorbide Dinitrate</b>	dose of a conventional release given
Isordil Tembids	in equivalent doses Q 12
Sorbitrate SA	

<i>Sustained-Release Analgesics</i>	
Controlled-Release Tablets	Controlled-Release Capsules
<b>Aspirin</b>	<b>Indomethacin</b>
Measurin	Indocin SR
Bayer Timed Release	
Zorprin	

<i>Controlled-Release Centrally Acting Drugs</i>	
Controlled-Release Tablets	
<b>Morphine</b>	
MS Contin	
Morphine SR	
<b>Lithium</b>	
Lithobid	

<i>Controlled-Release Theophylline Preparations</i>	
Controlled-Release Tablets	Controlled Release Capsules
Constant T	Aerolate
Duraphyl	Bronkdyl SR
Labid	Elixophyllin SR
Respbid	Slo Bid Gyrocaps
Sustaire	Slophyllin Gyrocaps
Theodur	Theo 24
Theolair	Theoclear LA
	Theophyl SR
	Theospan SR

<i>Sustained-Release Potassium Products</i>	
Controlled-Release Tablets	Controlled-Release Capsules
Kaon-CL	K-Tab
Klor-Con	K-Norm
Klotrix	Micro-K Extencaps
K-Dur	

<i>Sustained-Release Decongestant Antihistamine Combinations</i>	
Controlled-Release Tablets	Controlled-Release Capsules
Dimetapp	Sudafed Decongestant LA
Drixoral	

There are currently 87 different controlled-release products on the market for use as antihistamine/decongestants.

half of the dose is absorbed following a meal. Since Slo-Bid® capsules can be emptied of their contents and the absorption is not affected by food, this may be a better choice if administration of a sprinkle product with food is indicated (i.e., treatment of asthmatic child who cannot or will not swallow tablets or capsules). In these patients crushing a slow release tablet is not an acceptable alternative since the coating integrity is destroyed and the increased surface area results in a more rapid dissolution and rate of absorption.

### *"Once-a-day" Formulations*

The "once-a-day" formulations, in general, produce unacceptably large fluctuations in serum concentrations when actually dosed once daily. Absorption of theophylline from these products may be either incomplete, erratic or too rapid to sustain relatively constant serum concentrations over 24 hour dosing intervals.

Slo-Bid®, Sustaire®, and Theo-Dur® are the only completely absorbed products which are absorbed slowly enough to maintain serum concentrations within the therapeutic range when administered every 12 hours. Despite advertising claims to the contrary, the other slow release products require every 8 hours dosing to prevent serum concentration fluctuation greater than 100% in patients with rapid theophylline elimination (i.e., heavy smokers, young children). In addition, the absorption characteristics of half tablets and whole tablets of Theo-Dur® are identical allowing for gradual increases in dose when necessary.

New technology will be necessary before a product with relatively constant and complete absorption will be available for once-a-day dosing. Presently, the fluctuations in serum concentrations produced by either Theo-Dur® or Slo-Bid® administered every 12 hours will be less than that produced by the once-a-day formulations given every 24 hours.

Quinidine sustained-release formulations are available in 2 salt forms. Quinidine sulfate (Quinidex Extentabs®) and quinidine gluconate (Quinaglute®) are available in 300 mg and 324 mg tablets, respectively. Both products deliver approximately the same amount of quinidine. Compared to immediate-release tablets both forms have slower absorption allowing for 8 hour dosing in most patients and 12 hour dosing in some. Quinidex Extentabs® have a

coating which does not allow for cutting or breaking the tablets during dosage titration; Quinaglute® is a scored tablet that may be split for ease in dosage adjustment. It has been demonstrated the absorption of quinidine from both products is not adversely affected by food or aluminum hydroxide antacids.

Sustained-release phenytoin capsules (Dilantin® Kapseals) have slow absorption in most patients with peak serum concentrations occurring at 12 hours post-dose. Because of this slow absorption and the prolonged half-life of the drug it has been recommended to administer Dilantin® Kapseals in one daily dose. Many of the generic preparations are more rapidly absorbed and may produce intolerable fluctuations in phenytoin serum concentrations. Thus, the Food and Drug Administration has recommended against the use of any brand other than Dilantin® for once-a-day use. Once the patient's daily dose of phenytoin has been established it is recommended not to change either the dosage form or the manufacturer as relatively small changes in bioavailability can greatly alter the steady-state serum concentrations during chronic administration due to phenytoin's dose-dependent pharmacokinetics.

Although not thoroughly investigated, the bioavailability of phenytoin may be reduced in gastrointestinal diseases, particularly those associated with increased intestinal motility. In the case of severe diarrhea, malabsorption syndromes, or gastric resection decreased bioavailability should be considered, even for those products known to be well absorbed.

The absorption of both immediate-release and sustained-release phenytoin products is impaired to a significant degree when given concurrently with continuous nasogastric feedings. The steady-state plasma concentration is significantly reduced; the mechanism is not fully understood. Parenteral administration is probably preferred in these patients.

The antiarrhythmic agent, procainamide, is available as 2 brand name sustained-release preparations, Procan SR® and Pronestyl SR® (as well as several generic sustained-release products). It has been demonstrated both brand name products administered every 6 hours provide comparable bioavailability and serum concentrations as the immediate-release products administered every 3 hours. Food in the stomach at the time of adminis-

tration will delay gastric emptying and gastrointestinal transit for both formulations but does not alter total drug absorption. However, dramatic decreases in gastrointestinal transit as seen with severe diarrhea or colostomy patients has been reported to decrease absorption from these products. In addition, studies in healthy volunteers have demonstrated variation in absorption characteristics (time to peak; total amount absorbed) between the 2 products prompting the recommendation that patients initially stabilized on one brand name product not be changed to the other product.

### ***Generic vs. Brand Name Products***

Finally, a generic procainamide product (Ascot Pharmaceuticals, Inc., Skokie, IL) compared favorably in absorption and serum concentrations to a brand name product. However, at least one report has appeared in the literature of subtherapeutic serum concentrations occurring when switching from a brand name product to an unnamed generic product.

The pharmacodynamics of some therapeutic agents are such that sustained-release forms would appear non-essential. For example, various  $\beta$ -adrenergic blockers have been marketed in sustained-release forms intended for once or twice daily dosing (metoprolol, propranolol and pindolol). This is in spite of the fact that  $\beta$ -blocking effects lasting at least 12 hours after administration of an immediate release product have repeatedly been demonstrated. Because of the prolonged hemodynamic effect of all  $\beta$ -blockers, there appears to be little or no advantage of the sustained release preparations. A number of investigators have shown, despite higher serum concentrations at the end of the dosing interval, sustained-release formulations may not predictably result in a more prolonged response (over the immediate-release form). Clinicians should be aware, therefore, sustained-release preparations may not in all cases be advantageous to conventional release products. Clearly, the best example of this is the  $\beta$ -blocking agents.

A unique controlled-release formulation of nifedipine called the gastrointestinal therapeutic system (GITS) received FDA-approval for marketing in November, 1989. The nifedipine GITS is a push-pull osmotic tablet pump formulation which provides slow release

*(Continued next page)*



throughout the GI tract and relatively constant plasma concentrations over a 24-hour dosing interval. Dose-dumping has not been observed with the nifedipine GTS nor is it likely to be affected by gastrointestinal tract motility.

A number of other therapeutic agents will soon be available as sustained-release preparations. The  $\beta$ -agonist agent, albuterol, will be marketed in once-a-day dosing form under the brand names Proventil® Repetabs and Volmax®. Theophylline will, at some point in the future, be marketed in the form of a true once-a-day formulation (Unidur®) by the manufacturers of Theo-Dur®. Hopefully, this product will not suffer from the same limitations as current theophylline preparations approved for once-a-day administration.

*Editor's Note: Part 2 of this article will appear in the March issue of IOWA MEDICINE.*

### Further Reading

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- Chow MSS: Monitoring oral controlled-release drugs. *US Pharmacist*. 1987;12(2):58-70.

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# Annual Immunization Audit

**W**ITH MEASLES CASES RAMPANT, it is time to review Iowa's immunization position. Results of the annual audit of elementary and high schools in Iowa appear below with the 10-year averages.

## ALL GRADES

Year	Appropriately Immunized	Provisionally Enrolled	Exemptions Med. Rel.	Non Comp.
10-yr avg	97.24	1.89	.14 .24	.49
1989-90	97.18	1.81	.27 .25	.49

## KINDERGARTEN

10-yr avg	92.20	6.54	.20 .22	1.42
1989-90	91.11	6.72	.33 .18	1.66

While the changes are not great, they suggest a trend, particularly in the non-compliance area. There has been an increase in students with no immunizations, i.e., medical and religious exemptions. In light of the measles resurgence in the U.S., this creates a potential for major outbreaks in Iowa.

Immunizations are supported by the medical community, public health nurses and parents. The success of the state immunization law and its rigorous enforcement by school officials is demonstrated in disease statistics, especially measles. In the decade prior to implementation of the immunization law (1970-79), there were 10,641 reported cases of measles, 3,970 cases of rubella, 27,306 cases of mumps and 252 cases of pertussis. From 1980 through 1989, only 170 cases of measles were reported (134 in 1986). During this decade there were 5 years with no confirmed measles cases despite active surveillance and follow up of reported rash illness cases; 23 cases of rubella;

948 cases of mumps (467 in 1987) and 205 cases of pertussis with 2 deaths.

It is obvious the law has worked. While susceptibles to these diseases do remain, the epidemiology has changed dramatically for 3 of the 4 "childhood" diseases. Only pertussis remains primarily a disease of unimmunized infants and young children. All cases of rubella have occurred in immigrants or adults. Most mumps cases occurred in those of high school or college age. This was evident during the mumps epidemic in 1987.

The epidemiology of measles is interesting. Like most of the U.S., measles is primarily occurring in Iowa in those of high school and college age. Eight of 13 cases in 1989 were in persons 15 years of age and above. Only 2 were too young to be immunized. Six of the 13 lacked proof of immunization and one was immunized prior to 15 months of age. Only 4 counties have recorded cases in 1989: Clinton (3), Scott (7), Polk (2) and Story (1). Nine cases were confirmed by positive serologies, the other 3 cases were epidemiologically linked to one of the first cases.

Because of the increase nationally in measles cases and the potential for outbreaks in Iowa, the IDPH endorses the concept of a second dose of measles vaccine to be given to all persons over 4 years of age. Discussions are underway to determine the optimum age at which to institute the second dose in Iowa. The IDPH awaits recommendations from the U.S. Public Health Service and seeks input from physicians.

A second consideration is vaccine cost. The IDPH has requested funds from the state legislature and the federal government to implement reimmunization. Until then, a routine second MMR dose will not be available from public health clinics.

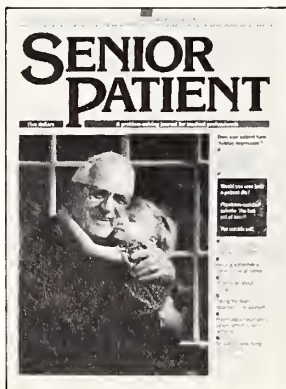
This article was written by Kevin Prust, a partner with McGladrey & Pullen, Des Moines.



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**BLUFF MEDICAL CENTER, P.C.** — Has positions for the following specialties (BC/BE): family practice, ENT, OB/GYN, pediatrics. The Bluff Medical Center, a multispecialty group practice, is located in Clinton, Iowa, population 32,000 with a service area of approximately 75,000-100,000. Guaranteed first year salary (negotiable) with a first year bonus incentive and a full range of benefits including malpractice insurance. For more information call Phil Sayles, Administrator, 1-800/397-5600 or write 240 North Bluff Boulevard, Clinton, Iowa 52732.

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**SURGEON OPPORTUNITY** — Immediate opening for general surgeon in rural Nebraska. Board Certified or Board Eligible. Must be licensed in Nebraska. Excellent benefits. Contact Wallace & Panzer, M.D., P.C., 807 North Ash, Gordon, Nebraska 69343.

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**PHYSICIAN OPPORTUNITIES** — Family practice, internal medicine, general surgery, nephrology, oncology and OB/GYN opportunities available in the midwest and nationwide. All guarantee excellent incomes and can be reviewed in full confidence. Call or send CV to Mary Agnello, Caswell/Winters Inc., 11400 West Lake Park Drive, Milwaukee, 53224 or 1-800/332-0488 (In Wisconsin 414/359-1111).

**MINNESOTA** — Family physician needed for broad base primary care, excellent community hospital with consulting and specialty support. Family oriented community with excellent schools, services, and easy access to Metro area. Guaranteed salary, full benefits and bonus. For confidential consideration contact Mary Jo Cordes, MDsearch, P.O. Box 16458, St. Paul, Minnesota 55116 or call 612/454-7291.

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**PRACTICE AND TEACH** — Board Certified family physician to join 4 full-time family physicians, Pharm.D. and social work staff at active family practice residency program in Davenport. Practice can include part-time practice at rural office, geriatrics, occupational medicine or combinations. Teaching will include staffing at the model office, hospital rounds and call rotating with other staff physicians and staffing obstetrics. Competitive salary and benefits. Contact Stephen Sidwell, M.D., Davenport Medical Education Foundation, 516 West 35th Street, Davenport, Iowa 52806; 319/386-3708.

**PHYSICIAN** — Excellent professional opportunity, immediate vacancies for Board Certified/Eligible internist or for a BC/BE residency trained general practitioner (GP). VAMC, Knoxville, Iowa, is a large neuropsychiatric medical center with strong allied health staff in the areas of psychiatry, social work, psychology, rehabilitation and recreation, as well as many specialty consultants. Enjoy the quality of rural life within commuting distance of the Des Moines metropolitan area. Benefits include attractive retirement plan with the option of thrift savings (401k), 30 days paid vacation, 15 days sick leave (can accumulate), health and life insurance, malpractice coverage. Salary to \$74,303 plus additional bonus from \$7,000 to \$22,500. Salary and bonus dependent on qualifications. Require license in any state. Equal opportunity employer. Contact Chief of Staff (11D), VA Medical Center, Knoxville, Iowa 50138. Phone 515/842-3101, ext. 6006.

**MISSOURI FAMILY PRACTICE** — Group seeks fourth physician, BC or BE, for historic community with 2 private colleges, near major university and medical center. Beautiful area. Recreation and cultural activities. Guarantee and other benefits. Reply in confidence to Mary Murphy, JONAS PHYSICIAN SEARCH. 800/544-6728.

**CLOSING PRACTICE** — Lots of medical equipment, including exam tables, scales, lab equipment, surgical instruments, etc. for sale. All can be seen at 111 1st Street, E., Mt. Vernon, Iowa. Please call Martha at 319/895-6707 to schedule a time to view this equipment.

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**ANESTHESIOLOGIST** — Des Moines, Iowa. Hospital-based opportunity at a 118-bed Charter Medical Corporation facility. Tremendous growth potential. State-of-the-art anesthesia equipment in 4 ORs (No OB). Staff will grow as we grow. Income guarantee, service director stipend, paid interview and redecoration assistance. Shared call arrangements and time off. Please send your CV to Mary Jane Neswold, Charter Community Hospital, 48th and Franklin Avenue, Des Moines, Iowa 50310 or call 515/271-6228.

**OSCEOLA, IOWA** — Weekend coverage available in emergency department of 48-bed hospital. Competitive hourly rate and malpractice insurance provided. Contact Emergency Consultants, Inc., 2240 South Airport Road, Room 43, Traverse City, Michigan 49684; 1-800/253-1795 or in Michigan 1-800/632-3496.

**IOWA CITY AND CEDAR RAPIDS** — Positions are available for full or part-time physicians in our outpatient family practice offices. No weekends. No call. Income guaranteed. Excellent opportunities available in these ideal locations! Contact Jill Buschmann, Medcenter West, 2215 Westdale Drive, SW, Cedar Rapids, Iowa 52404. Phone 319/396-2000.

**MCCRARY-ROST CLINIC, P.C.** — Seeking 2 family physicians, one for the Gowrie office and one for the Lake City office. The group includes 9 family physicians, 2 general surgeons and one general internist in an environment to practice quality medicine balanced with a high quality of life. Call every tenth night with adequate time off for family and other interests. For more information contact Ed Maahs, Administrator or D. L. Christensen at 800-262-6230.

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*(Continued next page)*



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**FANTASTIC FAMILY PRACTICE** — Opportunities currently exist in O'Neill, Nebraska. If you are interested in a rural practice, you will find few opportunities better than this. Direct inquiries to Physician Search Committee, St. Anthony's Hospital, 2nd and Adams Street, O'Neill, Nebraska 68763, 402/336-2611.

**RADIOLOGIST FOR MIDWEST** — Progressive hospital in Kansas with CT SCAN, mobile ultrasound and mammography seeks radiologist. Income guarantee provided. Projected revenues exceed \$200,000. All insurance paid. One hour from 2 cities which both offer cultural and educational amenities. Call Gwyneth Anderson at 800-221-4762. E.G. Todd Associates, 535 Fifth Avenue, Suite 1100, New York, New York 10017.

**EMERGENCY PHYSICIAN** — Full-time position available immediately for qualified emergency physician in MHMC ED Des Moines, Iowa. Competitive salary, one month paid vacation and opportunity for advancement. For further information contact Dr. Kenneth P. Schultheis or Dr. Leon Berkley, Emergency Physicians Service, P.C., Mercy Hospital Medical Center, Sixth and University, Des Moines, Iowa 50314. Phone 515/247-4445.

**MINNESOTA** — Hospital in beautiful historic river city in southern Minnesota seeking Director of Psychiatry. 12-bed inpatient adult and adolescent unit, outpatient CD and Day Hospital programs. Recruitment strongly supported by medical staff and community mental health center. Client flexible about structuring practice around physician's interests. City has 2 colleges with 7,000 students, Victorian homes and new homes set back in the wooded hills surrounding the city. For information, Call Greg Peterson, E.G. Todd Associates, at 800-776-7330 or collect 913-341-7806.

**HISTORIC RIVER CITY** — In southern Minnesota, population 30,000, service area 40,000+. Second ortho sought for modern hospital and clinic building. Excellent practice potential in beautiful city in wooded hills along the Mississippi, not far from Minneapolis or Madison. Interest in sports medicine a plus, but not a requisite. \$150,000 guarantee. Excellent diverse economy, no managed care. If you are interested in learning more about this opportunity or if we can assist you in locating an opportunity, please call Greg Peterson, E.G. Todd Associates, at 800-776-7330 or collect 913/341-7806.

**FAMILY PRACTICE PHYSICIANS WANTED** — To join new family practice clinic being built in Washington, Iowa. Strong emphasis in OB preferred. Opportunities galore! Excellent starting salary and paid benefits. After first year, partnership available. Enjoy the support from good, clean community of 7,000. Excellent schools, YMCA/YWCA, hospital, movies and much more. Only 30 miles from Iowa City and the Hawkeyes! For more information, please contact Dr. Matthew L. Sojka at 319/653-6601 or 319/653-4117.

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Iowa Orthopaedic Center, P.C. ....	71
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Lilly, Eli & Company .....	62B
Medical Protective Company .....	77
Merck, Sharp & Dohme .....	107, 108
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Prouty Company .....	99
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Saint Joseph Hospital .....	56
Senior Patient .....	98
U.S. Air Force .....	103

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## Cooperation Replaces Conflict

**N**O DOUBT THE PUBLIC'S PERCEPTION of the professional relationship between doctors and lawyers is that they get along about as well as the Hatfields and McCoys.

It is true there are issues which have caused intense divisiveness between the medical and legal professions. However, it looks as though some of this old divisiveness is gradually being replaced with a new spirit of cooperation — a spirit of cooperation which will ultimately benefit the public.

In February of 1989, despite many years of well-publicized disagreement over proposed reforms of liability laws, the Iowa Medical Society and the Iowa State Bar Association planned and co-sponsored a seminar geared toward members of both professions. The subject was AIDS ethical and legal issues, and the doctors and lawyers discovered their professional concerns on this subject are surprisingly similar.

More importantly, they discovered they had much to learn from each other and much to accomplish through unity.

This month, the IMS and the Iowa State Bar Association will co-sponsor another statewide seminar series — this time on legal and ethical issues involved in withholding or withdrawing medical treatment. Seminars will be held in Des Moines on February 6, in Sioux City on February 20 and in Cedar Rapids on February 27.

The evening seminars will feature a panel of 3 physicians and 3 lawyers who will discuss "real life" scenarios involving living wills and durable powers of attorney, "do not resuscitate" orders, nutrition and hydration and withholding treatment from neonates and infants.

Diane Kutzco, a Cedar Rapids attorney who is co-chairman of the Iowa State Bar As-

sociation's Health Law Committee, praises the medical and legal professions for expanding collaboration on difficult issues.

"I think it can only benefit both professions and the public if the doctors and lawyers sit down to talk about issues of mutual concern. We realized last year that if we could meet and agree on the AIDS issue, why not do the same with other issues?" she comments. "The public needs our 2 professions to look at these ethical issues and figure out together what the legal and medical implications are. This cooperation will protect the interest of patients and clients."

On many occasions, the IMS and the Iowa State Bar Association have met to discuss legislative issues. 1975 liability legislation came partly as a result of these discussions. Agreement has also been reached on other issues and legislation was forthcoming.

Prior to the 1989 session of the Iowa Legislature, the IMS and the ISBA put their collective heads together to address the public's growing concern over the AIDS crisis.

The result of this formal cooperation was passage of H.F. 641, which will allow physicians following specific procedures to perform their ethical duty to warn sex and drug partners of an HIV infected patient if the patient will not do so. This legislation which is so obviously in the interest of all Iowans probably would not have become a reality without the participation of both physicians and lawyers.

It's clear we face an unprecedented number of ethical dilemmas in the 1990s. Society's search for solutions could be easier if medicine and law present a united front.

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**February 1990**

**Iowa Medicine**





# VASOTEC®

## (ENALAPRIL MALEATE) MSD

VASOTEC is available in 2.5-mg, 5-mg, 10-mg, and 20-mg tablet strengths.

**Contraindications:** VASOTEC® (Enalapril Maleate, MSD) is contraindicated in patients who are hypersensitive to this product and in patients with a history of angioedema related to previous treatment with an ACE inhibitor.

**Warnings:** **Angioedema:** Angioedema of the face, extremities, lips, tongue, glottis, and/or larynx has been reported in patients treated with ACE inhibitors, including VASOTEC. In such cases, VASOTEC should be promptly discontinued and the patient carefully observed until the swelling disappears. In instances where swelling has been confined to the face and lips, the condition has generally resolved without treatment, although antihistamines have been useful in relieving symptoms. Angioedema associated with laryngeal edema may be fatal. **Where there is involvement of the tongue, glottis, or larynx likely to cause airway obstruction, appropriate therapy, e.g., subcutaneous epinephrine solution 1:1000 (0.3 mL to 0.5 mL), should be promptly administered.** (See ADVERSE REACTIONS.)

**Hypotension:** Excessive hypotension is rare in uncomplicated hypertensive patients treated with VASOTEC alone. Patients with heart failure given VASOTEC commonly have some reduction in blood pressure, especially with the first dose, but discontinuation of therapy for continuing symptomatic hypotension usually is not necessary when dosing instructions are followed, caution should be observed when initiating therapy. (See DOSAGE AND ADMINISTRATION.) Patients at risk for excessive hypotension, sometimes associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death, include those with the following conditions or characteristics: heart failure, hypotension, high-dose diuretic therapy, recent intensive diuresis or increase in diuretic dose, renal dialysis, or severe volume and/or salt depletion of any etiology. It may be advisable to eliminate the diuretic (except in patients with heart failure), reduce the diuretic dose, or increase salt intake cautiously before initiating therapy with VASOTEC. In patients at risk for excessive hypotension who are able to tolerate such adjustments. (See PRECAUTIONS, Drug Interactions and ADVERSE REACTIONS.) In patients at risk for excessive hypotension, therapy should be started under very close medical supervision and such patients should be followed closely for the first two weeks of treatment and whenever the dose of enalapril and/or diuretic is increased. Similar considerations may apply to patients with ischemic heart disease or cardiovascular disease in whom an excessive fall in blood pressure could result in a myocardial infarction or cerebrovascular accident. If excessive hypotension occurs, the patient should be placed in the supine position and, if necessary, receive an intravenous infusion of normal saline. A transient hypotensive response is not a contraindication to further doses of VASOTEC, which usually can be given without difficulty once the blood pressure has stabilized. If symptomatic hypotension develops, a dose reduction or discontinuation of VASOTEC or concomitant diuretic may be necessary.

**Neutropenia/Agranulocytosis:** Another ACE inhibitor, captopril, has been shown to cause agranulocytosis and bone marrow depression, rarely in uncomplicated patients but more frequently in patients with renal impairment, especially if they also have a collagen vascular disease. Available data from clinical trials of enalapril are insufficient to show that enalapril does not cause agranulocytosis at similar rates. Foreign marketing experience has revealed several cases of neutropenia or agranulocytosis in which a causal relationship to enalapril cannot be excluded. Periodic monitoring of white blood cell counts in patients with collagen vascular disease and renal disease should be considered.

**Precautions:** **General:** Impaired Renal Function: As a consequence of inhibiting the renin-angiotensin-aldosterone system, changes in renal function may be anticipated in susceptible individuals. In patients with severe heart failure whose renal function may depend on the activity of the renin-angiotensin-aldosterone system, treatment with ACE inhibitors, including VASOTEC, may be associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death.

In clinical studies in hypertensive patients with unilateral or bilateral renal artery stenosis, increases in blood urea nitrogen and serum creatinine were observed in 20% of patients. These increases were almost always reversible upon discontinuation of enalapril and/or diuretic therapy. In such patients, renal function should be monitored during the first few weeks of therapy.

Some patients with hypertension or heart failure with no apparent preexisting renal vascular disease have developed increases in blood urea and serum creatinine, usually minor and transient, especially when VASOTEC has been given concomitantly with a diuretic. This is more likely to occur in patients with preexisting renal impairment. Dosage reduction and/or discontinuation of the diuretic and/or VASOTEC may be required.

**Evaluation of patients with hypertension or heart failure should always include assessment of renal function.** (See DOSAGE AND ADMINISTRATION.)

**Hyperkalemia:** Elevated serum potassium (>5.7 mEq/L) was observed in approximately 1% of hypertensive patients in clinical trials. In most cases these were isolated values which resolved despite continued therapy. Hyperkalemia was a cause of discontinuation of therapy in 0.28% of hypertensive patients. In clinical trials in heart failure, hyperkalemia was observed in 3.8% of patients, but was not a cause for discontinuation.

Risk factors for the development of hyperkalemia include renal insufficiency, diabetes mellitus, and the concomitant use of potassium-sparing diuretics, potassium supplements, and/or potassium-containing salt substitutes, which should be used cautiously, if at all, with VASOTEC. (See Drug Interactions.)

**Surgery/Anesthesia:** In patients undergoing major surgery or during anesthesia with agents that produce hypotension, enalapril may block angiotensin II formation secondary to compensatory renin release. If hypotension occurs and is considered to be due to this mechanism, it can be corrected by volume expansion.

#### Information for Patients:

**Angioedema:** Angioedema, including laryngeal edema, may occur especially following the first dose of enalapril. Patients should be so advised and told to report immediately any signs or symptoms suggesting angioedema (swelling of face, extremities, eyes, lips, tongue, difficulty in swallowing or breathing) and to take no more drug until they have consulted with the prescribing physician.

**Hypotension:** Patients should be cautioned to report lightheadedness, especially during the first few days of therapy. If actual syncope occurs, the patients should be told to discontinue the drug until they have consulted with the prescribing physician.

All patients should be cautioned that excessive perspiration and dehydration may lead to an excessive fall in blood pressure because of reduction in fluid volume. Other causes of volume depletion such as vomiting or diarrhea may also lead to a fall in blood pressure; patients should be advised to consult with the physician.

**Hyperkalemia:** Patients should be told not to use salt substitutes containing potassium without consulting their physician.

**Neutropenia:** Patients should be told to report promptly any indication of infection (e.g., sore throat, fever) which may be a sign of neutropenia.

**NOTE:** As with many other drugs, certain advice to patients being treated with enalapril is warranted. This information is intended to aid in the safe and effective use of this medication. It is not a disclosure of all possible adverse or intended effects.

#### Drug Interactions:

**Hypotension. Patients on Diuretic Therapy:** Patients on diuretics and especially those in whom diuretic therapy was recently instituted may occasionally experience an excessive reduction of blood pressure after initiation of therapy with enalapril. The possibility of hypotensive effects with enalapril can be minimized by either discontinuing the diuretic or increasing the salt intake prior to initiation of treatment with enalapril. It is necessary to continue the diuretic, provide close medical supervision after the initial dose for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and DOSAGE AND ADMINISTRATION.)

**Agents Causing Renin Release:** The antihypertensive effect of VASOTEC is augmented by antihypertensive agents that cause renin release (e.g., diuretics).

**Other Cardiovascular Agents:** VASOTEC has been used concomitantly with beta-adrenergic-blocking agents, methylglucosides, calcium-channel blocking agents, hydralazine, prazosin, and digoxin without evidence of clinically significant adverse interactions.

**Agents Increasing Serum Potassium:** VASOTEC attenuates potassium loss caused by thiazide-type diuretics. Potassium-sparing diuretics (e.g., spironolactone, triamterene, or amiloride), potassium supplements, or potassium-containing salt substitutes may lead to significant increases in serum potassium. Therefore, if concomitant use of these agents is indicated because of demonstrated hypokalemia, they should be used with caution and with frequent monitoring of serum potassium. Potassium-sparing agents should generally not be used in patients with heart failure receiving VASOTEC.

**Lithium:** Lithium toxicity has been reported in patients receiving lithium concomitantly with drugs which cause elimination of sodium, including ACE inhibitors. A few cases of lithium toxicity have been reported in patients receiving concomitant VASOTEC and lithium and were reversible upon discontinuation of both drugs. It is recommended that serum lithium levels be monitored frequently if enalapril is administered concomitantly with lithium.

**Pregnancy—Category C:** There was no fetotoxicity or teratogenicity in rats treated with up to 200 mg/kg/day of enalapril (333 times the maximum human dose). Fetotoxicity, expressed as a decrease in average fetal weight, occurred in rats given 1200 mg/kg/day of enalapril but did not occur when these animals were supplemented with saline. Enalapril was not teratogenic in rabbits. However, maternal and fetal toxicity occurred in some rabbits at doses of 1 mg/kg/day or more. Saline supplementation prevented the maternal and fetal toxicity seen at doses of 3 and 10 mg/kg/day, but not at 30 mg/kg/day (50 times the maximum human dose).

Radioactivity was found to cross the placenta following administration of labeled enalapril to pregnant hamsters. There are no adequate and well-controlled studies of enalapril in pregnant women. However, data are available that

show enalapril crosses the human placenta. Because the risk of fetal toxicity with the use of ACE inhibitors has not been clearly defined, VASOTEC® (Enalapril Maleate, MSD) should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Postmarketing experience with all ACE inhibitors thus far suggests the following with regard to pregnancy outcome. Inadvertent exposure limited to the first trimester of pregnancy has not been reported to affect fetal outcome adversely. Fetal exposure during the second and third trimesters of pregnancy has been associated with fetal and neonatal morbidity and mortality.

When ACE inhibitors are used during the later stages of pregnancy, there have been reports of hypotension and decreased renal perfusion in the newborn. Oligohydramnios in the mother has also been reported, presumably representing decreased renal function in the fetus. Infants exposed *in utero* to ACE inhibitors should be closely observed for hypotension, oliguria, and hyperkalemia. If oliguria occurs, attention should be directed toward support of blood pressure and renal perfusion with the administration of fluids and pressors as appropriate. Problems associated with prematurity such as patent ductus arteriosus have occurred in association with maternal use of ACE inhibitors, but it is not clear whether they are related to ACE inhibition, maternal hypertension, or the underlying prematurity.

**Nursing Mothers:** Milk in lactating rats contains radioactivity following administration of <sup>14</sup>C enalapril maleate. It is not known whether this drug is secreted in human milk. Because many drugs are secreted in human milk, caution should be exercised when VASOTEC is given to a nursing mother.

**Pediatric Use:** Safety and effectiveness in children have not been established.

**Adverse Reactions:** VASOTEC has been evaluated for safety in more than 10,000 patients, including over 1000 patients treated for one year or more. VASOTEC has been found to be generally well tolerated in controlled clinical trials involving 2900 patients.

**HYPERTENSION:** The most frequent clinical adverse experiences in controlled trials were headache (5.2%), dizziness (4.3%), and fatigue (3%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in controlled clinical trials were diarrhea (1.4%), nausea (1.4%), rash (1.4%), cough (1.3%), orthostatic effects (1.2%), and asthenia (1.1%).

**HEART FAILURE:** The most frequent clinical adverse experiences in both controlled and uncontrolled trials were dizziness (7.9%), hypotension (6.7%), orthostatic effects (2.2%), syncope (2.2%), cough (2.2%), chest pain (2.1%), and diarrhea (2.1%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in both controlled and uncontrolled clinical trials were fatigue (1.8%), headache (1.8%), abdominal pain (1.6%), asthenia (1.6%), orthostatic hypotension (1.6%), vertigo (1.6%), angina pectoris (1.5%), nausea (1.3%), vomiting (1.3%), bronchitis (1.3%), dyspnea (1.3%), urinary tract infection (1.3%), rash (1.3%), and myocardial infarction (1.2%).

Other serious clinical adverse experiences occurring since the drug was marketed or adverse experiences occurring in 0.5% to 1% of patients with hypertension or heart failure in clinical trials in order of decreasing severity within each category:

**Cardiovascular:** Cardiac arrest, myocardial infarction or cerebrovascular accident, possibly secondary to excessive hypotension in high-risk patients (see WARNINGS, Hypotension); cardiac arrest; pulmonary embolism and infarction; rhythm disturbances, atrial fibrillation, palpitation.

**Digestive:** Nausea, pancreatitis, hepatitis or cholestatic jaundice, melena, anorexia, dyspepsia, constipation, glossitis, stomatitis.

**Musculoskeletal:** Muscle cramps.

**Nervous/Psychiatric:** Depression, confusion, ataxia, somnolence, insomnia, nervousness, paresthesia.

**Urogenital:** Renal failure, oliguria, renal dysfunction (see PRECAUTIONS and DOSAGE AND ADMINISTRATION).

**Respiratory:** Bronchospasm, rhinorrhea, sore throat and hoarseness, asthma, upper respiratory infection.

**Skin:** Herpes zoster, urticaria, pruritus, alopecia, flushing, hyperhidrosis.

**Special Senses:** Blurred vision, taste alteration, tinnitus.

A symptom complex has been reported which may include a positive ANA, an elevated erythrocyte sedimentation rate, arthralgia/arthritis, myalgia, fever, serositis, vasculitis, leukocytosis, eosinophilia, photosensitivity, rash, and other dermatologic manifestations.

**Angioedema:** Angioedema has been reported in patients receiving VASOTEC (0.2%). Angioedema associated with laryngeal edema may be fatal. If angioedema of the face, extremities, lips, tongue, glottis, and/or larynx occurs, treatment with VASOTEC should be discontinued and appropriate therapy instituted immediately. (See WARNINGS.)

**Hypotension:** In the hypertensive patients, hypotension occurred in 0.9% and syncope occurred in 0.5% of patients following the initial dose or during extended therapy. Hypotension or syncope was a cause for discontinuation of therapy in 0.1% of hypertensive patients. In heart failure patients, hypotension occurred in 6.7% and syncope occurred in 2.2% of patients. Hypotension or syncope was a cause for discontinuation of therapy in 1.9% of patients with heart failure. (See WARNINGS.)

#### Clinical Laboratory Test Findings:

**Serum Electrolytes:** Hyperkalemia (see PRECAUTIONS), hyponatremia.

**Creatinine, Blood Urea Nitrogen:** In controlled clinical trials, minor increases in blood urea nitrogen and serum creatinine, reversible upon discontinuation of therapy, were observed in about 0.2% of patients with essential hypertension treated with VASOTEC alone. Increases are more likely to occur in patients receiving concomitant diuretics or in patients with renal artery stenosis. (See PRECAUTIONS.) In patients with heart failure who were also receiving diuretics with or without digitalis, increases in blood urea nitrogen or serum creatinine, usually reversible upon discontinuation of VASOTEC and/or other concomitant diuretic therapy, were observed in about 11% of patients. Increases in blood urea nitrogen or creatinine were a cause for discontinuation in 1.2% of patients.

**Hemoglobin and Hematocrit:** Small decreases in hemoglobin and hematocrit (mean decreases of approximately 0.3 g% and 1.0 vol%, respectively) occur frequently in either hypertension or heart failure patients treated with VASOTEC but are rarely of clinical importance unless another cause of anemia coexists. In clinical trials, less than 0.1% of patients discontinued therapy due to anemia.

**Other (Causal Relationship Unknown):** In marketing experience, rare cases of neutropenia, thrombocytopenia, and bone marrow depression have been reported. A few cases of hemolysis have been reported in patients with G6PD deficiency.

**Liver Function Tests:** Elevations of liver enzymes and/or serum bilirubin have occurred.

**Dosage and Administration:** **Hypertension:** In patients who are currently being treated with a diuretic, symptomatic hypotension occasionally may occur following the initial dose of VASOTEC. The diuretic should, if possible, be discontinued for two to three days before beginning therapy with VASOTEC to reduce the likelihood of hypotension. (See WARNINGS.) If the patient's blood pressure is not controlled with VASOTEC alone, diuretic therapy may be resumed.

If the diuretic cannot be discontinued, an initial dose of 2.5 mg should be used under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, Drug Interactions.)

The recommended initial dose in patients not on diuretics is 5 mg once a day. Dosage should be adjusted according to blood pressure response. The usual dosage range is 10 to 40 mg per day administered in a single dose or in two divided doses. In some patients treated once daily, the antihypertensive effect may diminish toward the end of the dosing interval. In such patients, an increase in dosage or twice-daily administration should be considered. If blood pressure is not controlled with VASOTEC alone, a diuretic may be added.

Concomitant administration of VASOTEC with potassium supplements, potassium salt substitutes, or potassium-sparing diuretics may lead to increases of serum potassium (see PRECAUTIONS).

**Dosage Adjustment in Hypertensive Patients with Renal Impairment:** The usual dose of enalapril is recommended for patients with a creatinine clearance > 30 mL/min (serum creatinine of up to approximately 3 mg/dL). For patients with creatinine clearance ≤ 30 mL/min (serum creatinine ≥ 3 mg/dL), the first dose is 2.5 mg once daily. The dosage may be titrated upward until blood pressure is controlled or to a maximum of 40 mg daily.

**Heart Failure:** VASOTEC is indicated as adjunctive therapy with diuretics and digitalis. The recommended starting dose is 2.5 mg once or twice daily. After the initial dose of VASOTEC, the patient should be observed under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, Drug Interactions.) If possible, the dose of the diuretic should be reduced, which may diminish the likelihood of hypotension. The appearance of hypotension after the initial dose of VASOTEC does not preclude subsequent careful dose titration with the drug, following effective management of the hypotension. The usual therapeutic dosing range for the treatment of heart failure is 5 to 20 mg daily given in two divided doses. The maximum daily dose is 40 mg. Once-daily dosing has been effective in a controlled study, but nearly all patients in this study were given 40 mg, the maximum recommended daily dose, and there has been much more experience with twice-daily dosing. In addition, in a placebo-controlled study which demonstrated reduced mortality in patients with severe heart failure (NYHA Class IV), patients were treated with 2.5 to 40 mg per day of VASOTEC, almost always administered in two divided doses. (See CLINICAL PHARMACOLOGY, Pharmacodynamics and Clinical Effects.) Dosage may be adjusted depending upon clinical or hemodynamic response. (See WARNINGS.)

**Dosage Adjustment in Patients with Heart Failure and Renal Impairment or Hypoalbuminemia:** In patients with heart failure who have hyponatremia (serum sodium < 130 mEq/L) or with serum creatinine > 1.6 mg/dL, therapy should be initiated at 2.5 mg daily under close medical supervision. (See DOSAGE AND ADMINISTRATION, Heart Failure, WARNINGS, and PRECAUTIONS, Drug Interactions.) The dose may be increased to 2.5 mg b.i.d., then 5 mg b.i.d. and higher as needed, usually at intervals of four days or more, if at the time of dosage adjustment there is not excessive hypotension or significant deterioration of renal function. The maximum daily dose is 40 mg.

For more detailed information, consult your MSD Representative or see Prescribing Information, Merck Sharp & Dohme, Division of Merck & Co., Inc., West Point, PA 19386.

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March 1990

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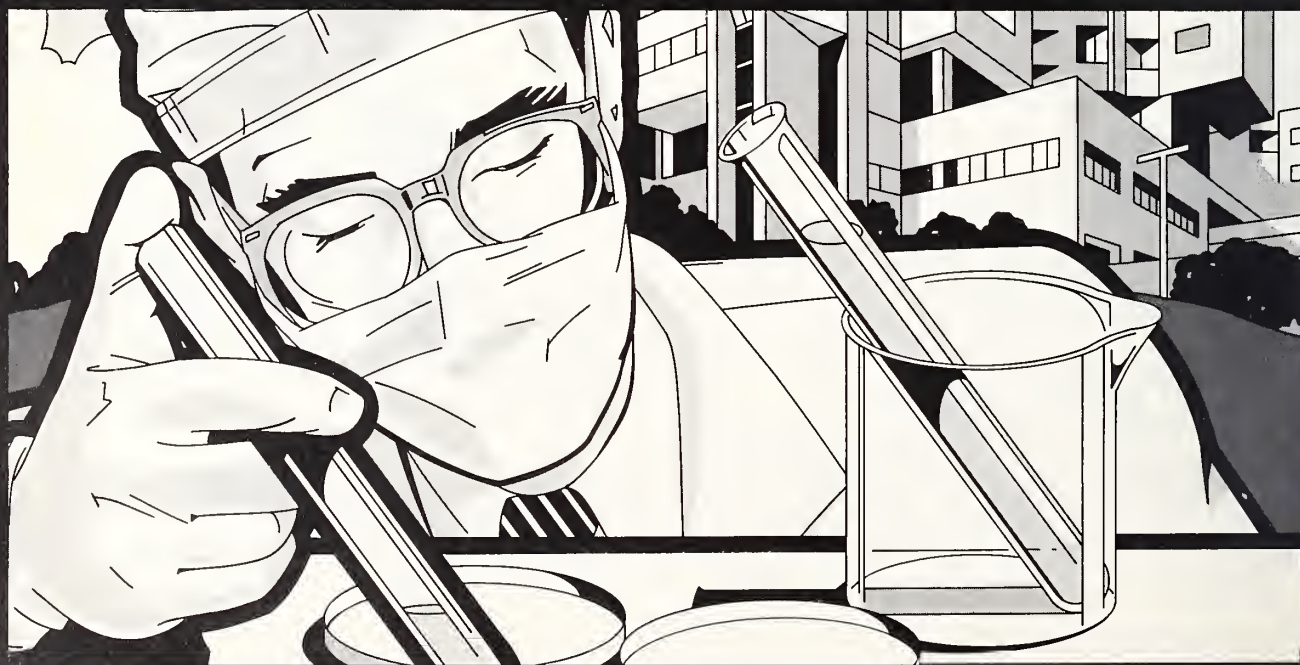
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# In This Issue

## Departments

- 115 President's Privilege
- 123 Questions and Answers
- 133 The Editor Comments
- 135 CME Notebook
- 136 Biomedical Ethics
- 136A IMS Scientific Session Program
- 138 Practice Management
- 141 Drug Therapy Review
- 148 Iowa Department of Public Health
- 153 About Iowa Physicians
- 162 In the Public Interest

## Special Articles

- 116 **What's New in Ob/Gyn? Five Iowa Physicians Respond**  
*The ob/gyn field boasts a number of significant technological advances.*  
**Craig Syrop, M.D., Robert Reiter, M.D., Katherine Hauser, M.D., Carl Weiner, M.D., Gerald Shirk, M.D.**
- 121 **Giving Something Back**  
*Longtime Pocahontas family physician John Rhodes is paying a debt to his community.*

## Scientific Articles

- 125 **Improved Screening for Fetal Chromosome Abnormalities**  
*More effective screening for Down syndrome increases the need for sensitivity in dealing with expectant parents.*  
**Roger Williamson, M.D.**
- 129 **Pudendal Anesthesia and the Iowa Trumpet**  
*The Iowa Trumpet may be the last commonly used surgical instrument developed by a general practitioner.*  
**Lloyd D. Holm, D.O.**

## About the Cover

"Mother and Child," by Oregon artist Ted Pike, is on permanent display in the lobby of Marian Health Center in Sioux City. The sculpture, a simple yet powerful symbol of maternity, was designed to convey the love and warmth of motherhood.



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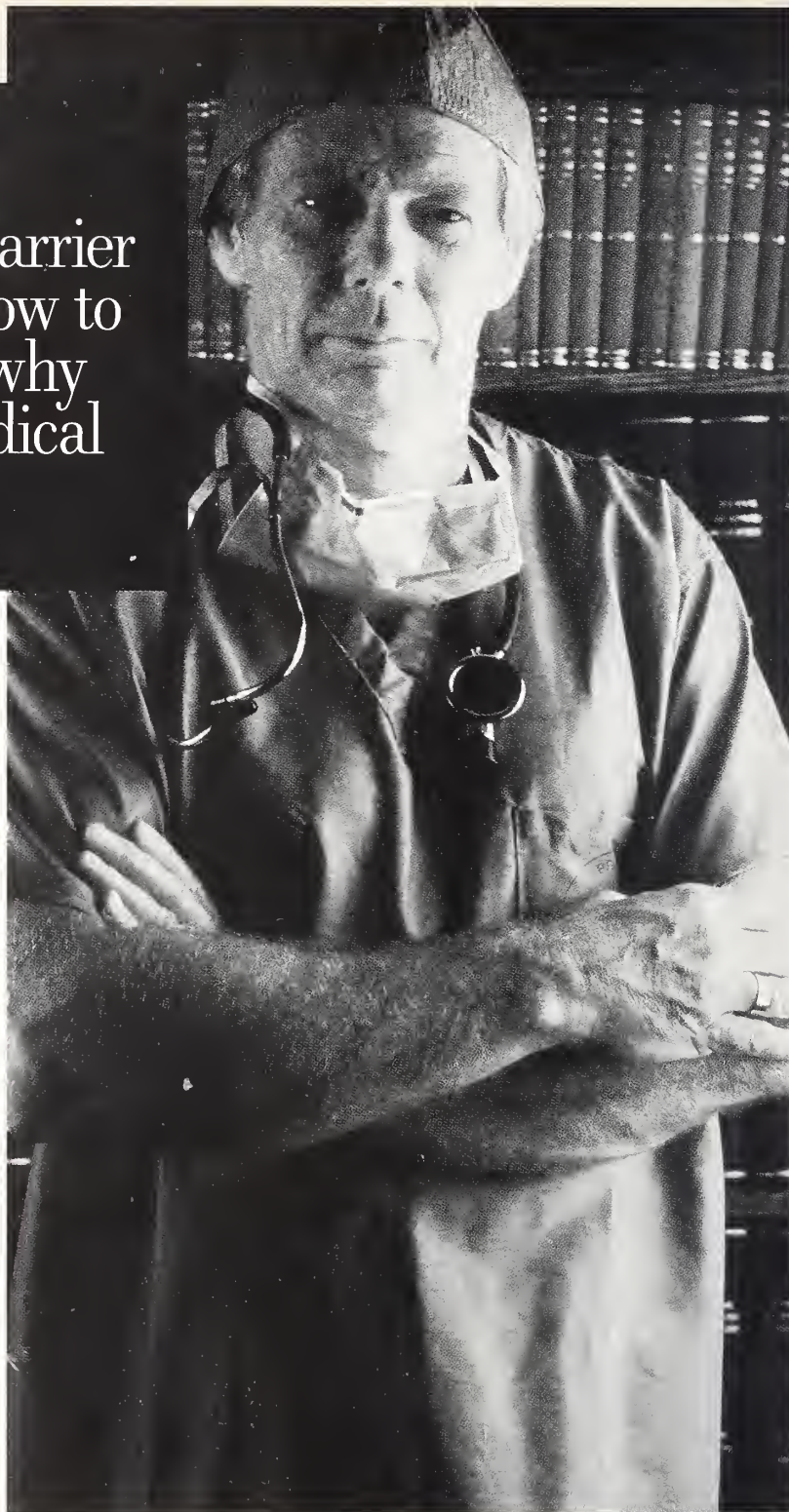
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## Donald F. Rodawig, M.D.

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President's Privilege



# Decade of the 90s: What Do You Want?

**I**N REFLECTING ON THE PAST decade in medicine, I am amazed at the astounding things we do in treating patients. MRI, genetic manipulation, transplants, pharmaceutical innovations, surgical advances and a myriad of other explosions in medical technology "boggle" my mind.

People live longer and request more from our already clogged health care system. As a result, health care costs have increased to the point that patients, health care providers and payers cannot cope. Patients expect near perfect results, further complicating the doctor-patient relationship and creating tort implications.

Government and third party payers cannot afford miracles. The prospect of national health care is real. Budgetary constraints make rationing of health care inevitable. Physicians are engulfed in a sea of bureaucracy and paperwork.

In facing the 90s, I believe ethical issues will be our foremost challenge. No longer

can we just grind out technology to cure, interface or adjust human life without addressing what to do with these capabilities. This issue has gone beyond the physician-patient relationship into the legislatures and courts. Ethical strategy must enter into a general consensus involving our entire society. This will involve the right to live, the right to die, abortion, AIDS and other issues which divide our people.

Society must reach a consensus of how we use advances in technology before we know how far to go with the miracles of medicine. Uncontrolled technology without moral direction could be the downfall of our democratic society as we know it.

*Donald F Rodawig MD*

Donald F. Rodawig, M.D.  
President



# What's New in Ob/Gyn?

## Five Iowa Physicians Respond

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*Gamete micromanipulation, new treatment of uterine bleeding and advances in ultrasound are only a few of the recent developments in the field of obstetrics/gynecology.*

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### Ovum Surgery

CRAIG SYROP, M.D.  
Iowa City, Iowa

**A**SSISTED REPRODUCTIVE TECHNOLOGIES of in vitro fertilization (IVF), gamete intrafallopian transfer (GIFT) and pronuclear stage transfer (PROST) represent therapeutic advances in treating infertility. Although PROST yields improved results in treating some male factor abnormalities, prospects for success in the face of severe sperm dysfunction have remained poor.

Recently, a promising technique of gamete micromanipulation, partial zona dissection (PZD), has produced live births. This "cellular surgery" involves puncturing and cutting the oocyte's zone pellucida to facilitate sperm entry into the perivitelline space and subsequent fertilization.

Clinical pregnancy rates following IVF and PZD are approximately 13% — still lower than in the "no male factor" infertility groups. In the future, similar techniques can be applied to early genetic diagnosis by removal and analysis of polar bodies or blastomeres with replacement of normal embryos.

### Chronic Pelvic Pain

ROBERT REITER, M.D.  
Iowa City, Iowa

**C**HRONIC PELVIC PAIN (CPP) is listed as the indication for approximately 78,000 hysterectomies annually in the United States. Histologic pathology (usually *incidental* leiomyomata) is discovered in less than half.

Several recent studies have investigated a variety of non-gynecologic somatic as well as non-somatic (psychogenic) disorders as possible causes of CPP. Symptoms of irritable bowel syndrome are evident in up to 60% of referrals for chronic pelvic pain, and abdominal wall or myofascial "trigger points" have been reported in up to 70% of chronic pelvic pain patients. Pelvic venography identified pelvic varicosities in over 80% of women evaluated for pelvic pain in one study. Finally, psychological diagnoses, particularly depression, somatization disorder, psychogenic pain disorder and post-traumatic stress disorder, have been established in from 50 to 85% of patients with CPP. Unfortunately, the mutually exclusive prevalences reported for these diagnoses either reflect implausible differences in populations, unlikely concurrent diagnoses, or strong observer biases.

A prospective evaluation of approximately 200 consecutive referrals to a multidisciplinary Chronic Pelvic Pain Clinic over a 5-year interval was recently reported. Primary psychogenic pain was found in 35%, primary somatic disorders (including gas-

troenterologic, urologic, myofascial and infectious diseases) in 30%, and concurrent psychological and somatic pathology in 20% of referrals. In approximately 15% of cases, no likely cause for the pain was found. Significantly increased rates of prior surgery and outpatient consultations (for reasons unrelated to the pain) and high rates of prior significant psychosexual trauma (rape, molestation or incest) were documented. Subsequent to the initiation of the clinic, the frequency of hysterectomy for chronic pelvic pain dropped significantly.

These investigations suggest non-somatic (psychogenic) and non-gynecologic somatic pathology may be responsible for up to 80% of cases of chronic pelvic pain. It seems clear, therefore, that "definitive" surgical therapy consisting of total abdominal hysterectomy and bilateral salpingo-oophorectomy should be considered only after a thorough investigation has ruled out these causes.

## Gonadotropin Releasing Hormone Agonist (GNRH-A)

KATHERINE HAUSER, M.D.

Des Moines, Iowa

**T**HE PITUITARY is intolerant of *chronic* GNRH stimulation. Long-acting GNRH-A causes 2-phase response. Following an early, brief pituitary stimulation with output of gonadotropins, gonadotropin secretion is paradoxically reduced (down regulation) causing gonadal production of steroids to approach zero. This paradoxical suppression of gonadal function has opened the door to new medical therapies.

The use of GNRH-A to create a "medically reversible oophorectomy" has been shown in endometriosis to be therapeutically similar to the effects achieved by Danocrine. The side effects of GNRH-A induced hypoestrogenemia, principally hot flashes, are usually much better tolerated than the Danocrine induced androgen effects such as weight gain, acne and hirsutism.

Medical therapy for symptomatic leiomyomata with GNRH-A can serve one of 2 goals in selected patients. First, the therapy

may eliminate the need for surgery for some, especially for perimenopausal women or those who pose high surgical or anesthetic risks. Second, the use of the agonist can reduce surgical risks such as the need for transfusion by reducing uterine and myoma size and by inducing amenorrhea prior to surgery allowing hemoglobin levels to increase. Other uses include treatment of polycystic ovarian disease and as an adjunct in ovulation induction regimens.

Currently one agonist (Lupron) is commercially available to clinicians as either a daily subcutaneous or monthly intramuscular depo injection.

## Primary Care Fetal Medicine

CARL WEINER, M.D.

Iowa City, Iowa

**D**IRECT FETAL STUDY has always been desirable but difficult to come by. Advances in ultrasound have made it possible for the perinatologist to move into the realm of primary care fetal medicine. Cordocentesis is the basis for that move. Over 800 diagnostic procedures (with 120 fetal intravascular transfusions) have been performed at the University of Iowa. This wide experience has provided insights into the physiology, pathophysiology and treatment of the fetus. The most common indication per procedure is fetal hemolytic disease. The most common indication per patient is the rapid karyotype of a fetus with a sonographic abnormality.

Direct fetal procedures have had the greatest impact on hemolytic disease. Direct fetal blood sampling has largely supplanted amniotic fluid  $\Delta$  OD 450 measurement and allowed categorization of the fetus by its risk for transfusion. Over 25% of patients referred for hemolytic disease are unaffected and need no further study. Intravascular transfusion has proven remarkably safe — only one loss in 230 procedures with equal salvage of nonhydropic and hydropic fetuses. This high degree of safety allows for a final transfusion at 34-35 weeks and a term delivery in 80% of cases.

(Continued next page)



Cordocentesis is only a procedure. Of greater importance is what one does with the specimen. Iowa's multidisciplinary Fetal Diagnosis and Treatment Unit, backed up by a wide array of basic scientists, seeks to improve the lot of the fetus and diminish perinatal morbidity and mortality.

## Hysteroscopy for Abnormal Uterine Bleeding

GERALD SHIRK, M.D.  
Cedar Rapids, Iowa

**H**YSTEROSCOPIC ENDOMETRIAL ABLATION using the Nd:YAG laser was described in 1981. The basic principle is simple; destroy

all the endometrium thermally rather than remove the entire uterus. This procedure has since been popularized as an alternative surgical treatment of abnormal uterine bleeding. It is an outpatient procedure providing the advantages of reduced postoperative disability, patient discomfort, risks and costs. Ninety-five percent of patients can be adequately treated for their abnormal menstrual bleeding problems using this technique.

Other applications of operative hysteroscopy utilize the resectoscope. They include resection of intramural and submucosal myomas, removal of polyps, metroplasty and as an alternative to the much more expensive Nd:YAG laser for endometrial ablation. Hysteroscopy has made it possible for the gynecologist to more adequately evaluate patients with abnormal uterine bleeding and provides alternative means of treatment.

## Pill Use

According to Johns Hopkins University School of Public Health, 63 million married women worldwide practice family planning with oral contraceptives. There has been an increase of almost 10 million pill users since 1980.

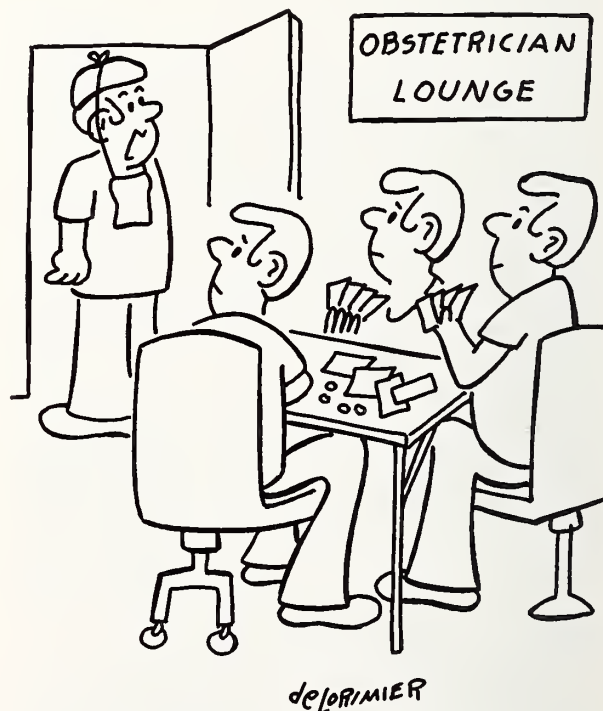
Most of the increase in pill use has occurred in the Third World. The report estimates 60% of pill users are in developing countries. In the U.S., over 6 million married women and 6 million unmarried women use the pill.

## Lack of Insurance and Newborn Health Problems

According to a new study by University of California researchers, newborns in families without health insurance have at least a 30% greater chance of being seriously ill at birth.

University researchers studied newborn hospitalizations in an 8-county region of northern California and found the proportion of newborns without health insurance — public or private — jumped 45% in 4 years.

In 1986, 8.5% of uninsured newborns in the study experienced prolonged hospital stays, transfers to acute care facilities or death. Only 6.1% of insured newborns had adverse outcomes.



"The lady in maternity just had four queens."

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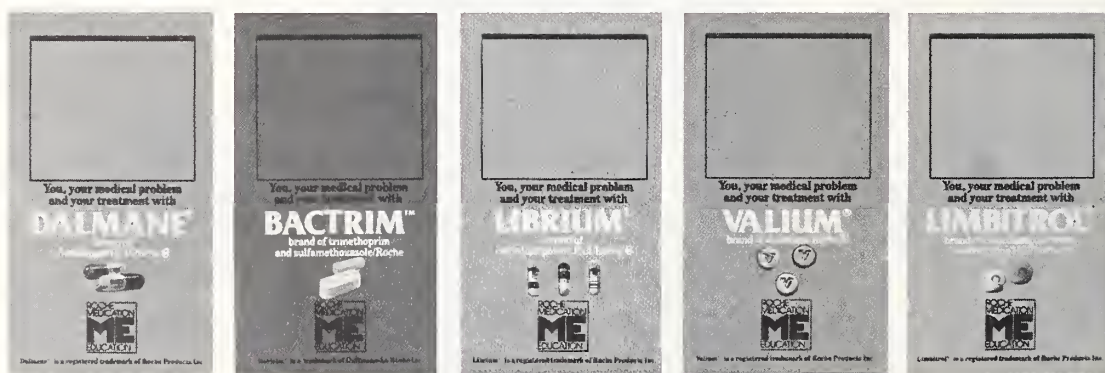


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# Giving Something Back

ONE THING A BUSY FAMILY physician in a small town doesn't need is a second job . . . particularly one which involves evening hours, terrible pay and an occasional sweeping controversy.

However, Dr. John Rhodes, a longtime family practitioner, is in his 30th year of service on the Pocahontas School Board — an incredible achievement in a community service post which has a high burnout rate.

Being a school board member is often perceived as a thankless job, but Dr. Rhodes — a well-liked and respected figure in Pocahontas — doesn't see it that way.

"I think most physicians feel the community they practice in has been good to them and they owe it to the community to give something back," he explains. "I'm glad I could have a role in developing a strong school system with excellent support from the administrators, teachers and public."

Dr. Rhodes recalls he was first approached about coming onto the school board "in a smoke-filled room."

"A board member had moved and they needed a replacement. They told me everything was going along fine on the board. When I got to my first meeting, I found out they were trying to get rid of the superintendent."

Later in Dr. Rhodes' tenure on the board, yet another superintendent's head was on the chopping block.

"They voted 3-2 to terminate him," relates Dr. Rhodes. "He was a patient and a friend of mine. I defended him at a public hearing and at the end they voted 3-2 to retain him."

One of those "town docs" known and loved in their communities, Dr. Rhodes says he often gets approached about school board issues because his office is on Main Street.

"Being on a school board for 30 years teaches you to respect good administrators and good teachers. We have a tremendous ed-

ucational system in Iowa and it's always improving."

Dr. Rhodes is also active in the IMS and organized medicine as a longtime AMA delegate, a member of the Board of Medical Examiners and in many other capacities. He has been practicing medicine in Pocahontas since April of 1946 and says he's still going at it full time. His partner is his son, John Rhodes, Jr.

"A few years back, some of the townspeople wanted to have a big celebration for me. I told them it wasn't necessary, that I've gotten more out of this community than I could ever give back. Besides," he says jokingly, "they were only trying to get me to retire."



**THIRTY YEARS ON BOARD . . .** John Rhodes, M.D. (back row, right) has been a member of the Pocahontas School Board for 30 years and believes community service is important for physicians. He's practiced in Pocahontas since 1946.



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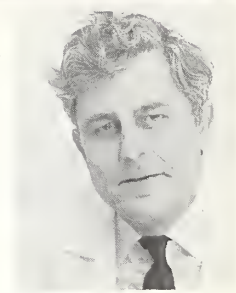


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## Frank Zlatnik, M.D.

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Questions and Answers



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# Liability, Restricted Access Of Concern to ACOG

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*The author, an Iowa City obstetrician/gynecologist and chairman of the Iowa Section—American College of Obstetricians and Gynecologists, discusses that organization's goals for the coming decade.*

---

### **What are the objectives of the American College of Obstetricians and Gynecologists?**

The objectives of the College are to improve the health care of women through education of its 28,000 members and the public and to serve as an advocate for women on health care issues.

### **What are the current concerns of obstetrician/gynecologists with regard to the present and future practice environment?**

As is the case with those practicing in other specialties, Fellows of the Iowa Section of ACOG are very concerned about medical liability issues and the potential adverse effects on patient care of cost-saving attempts by third party payers. Shortened postpartum stays, for example, may save a few dollars but certainly create anxiety for the new family, limit the education provided to the young couple con-

cerning newborn care and, in my view, often result in something less than excellent and compassionate patient care.

### **What is the current picture with regard to the supply of obstetrician/gynecologists? Is there a surplus or a shortage?**

Notwithstanding the predictions of a few years ago, nationwide there is no surplus. There is a shortage here in Iowa. Excellent practice opportunities are available in several communities.

### **What are other issues of concern to the Iowa Section of ACOG?**

In some areas of the state the access of poor women to obstetric services is limited. One apparent way to help alleviate this problem is to increase Title XIX reimbursement levels.

Given their direct experience with the problems created by sexually transmitted diseases and unintended pregnancies in adolescents, Fellows of the Iowa Section are strongly supportive of the current initiatives to improve the human growth and development curricula in Iowa schools.

At its annual meeting in November, 1989, the Iowa Section of ACOG went on record opposing any legislative attempts to restrict access of Iowa women to abortion services.





# IOWA METHODIST MEDICAL CENTER

## The Throckmorton Surgical Society and Iowa Academy of Surgery Spring Meetings



May 25-26, 1990  
Jester Auditorium  
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Des Moines, Iowa



**Friday, May 25, 1990: Surgical Symposium on "Upper Gastrointestinal Disorders and Surgery"**

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### TOPICS

"Reflux Esophagitis: Pathophysiology, Diagnosis & Preferences for Surgical Intervention"

"Post-operative Complications of Gastric Surgery: Diagnosis & Treatment"

"Medical & Endoscopic Treatment of Upper Gastrointestinal Bleeding"

"Surgical Treatment of Acute Complications of Peptic Ulcer Disease"

"Techniques Employed for Esophageal Reconstruction"

"Cancer of the Distal Esophagus & Gastric Cardia"

"Re-operations for Recurrent Esophageal Reflux"

"Medical Treatment of Peptic Ulcer Disease"

"Treatment of Gastric Ulcers"

"Gastric Obesity Surgery"

"Barrett's Esophagus"

"Gastric Cancer"

**ACCREDITATION** — As an organization accredited for Continuing Medical Education, the Iowa Methodist Medical Center certifies that this CME program meets the criteria for 7 hours in Category I of the Physicians Recognition Award of the AMA.

### Saturday, May 26, 1990: Iowa Academy of Surgery Meeting

Members of the Iowa Academy of Surgery will present papers at the scientific and clinical session on Saturday morning. This session of the meeting is open to all those attending Friday's meeting. The meeting will be held in the Ralph A. Jester Auditorium at Iowa Methodist Medical Center School of Nursing. Category I CME credits will be given for attending this interesting and informative session.

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# Improved Screening for Fetal Chromosome Abnormalities

ROGER WILLIAMSON, M.D.  
Iowa City, Iowa

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*The author discusses new screening technology which will soon be detecting more fetuses with chromosome abnormalities.*

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**T**HERE IS AN ASSOCIATION between lower levels of maternal serum alpha-fetoprotein (MSAFP) and Down syndrome. Values are, on average, 25% less than values associated with chromosomally normal fetuses. This lowering of MSAFP has also proven valid for fetal aneuploidy other than Down syndrome, including trisomies 13 and 18, triploidy, Turner syndrome and chromosomal deletions.

A prospective study of this phenomenon was organized in New England. Data were contributed by 8 centers and analyzed by the Foundation for Blood Research (FBR) in Scarborough, Maine. Criteria for the study included maternal age under 35, weight adjusted MSAFP, an individualized risk figure based on age and weight-corrected MSAFP

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Dr. Williamson is associated with the University of Iowa Hospitals and Clinics Department of Obstetrics and Gynecology.

level, analysis of only one serum, ultrasound to confirm or correct dates and amniocentesis for Down syndrome risk  $\geq 1/270$ . Of 51,000 patients enrolled in the study, 3.6% were initially classified at risk. After ultrasound correction, 2.1% were offered amniocentesis. Of those undergoing this procedure, one in 58 fetuses had a karyotypic abnormality (10 cases of trisomy 21 and 4 of trisomy 18).

The detection efficiency in this large study was greater than that observed when offering amniocentesis based solely on age  $\geq 35$ . Down syndrome was found in 1/90 in this study vs. 1/140 for women  $\geq 35$ .

The results from the New England regional study were convincing and led to our offering amniocentesis to women under age 35 in Iowa in 1987. We have utilized the risk calculations derived by the FBR and have participated in their external Quality Assurance program. For the past 2 years the number of pregnancies associated with chromosomally abnormal fetuses detected in women under age 35 has been between 1/50 to 1/60 per amniocentesis.

## *Other Hormone Markers*

Approximately 20-25% of cases of Down syndrome occur in women age 35 and greater (5% of the pregnant population). A similar percent is detectable in women under age 35 utilizing a combination of age and MSAFP level. Thus, a maximum of 40-45% of cases of Down syndrome and other aneuploid condi-

THE IOWA MEDICAL FOUNDATION HAS DESIGNATED THIS ARTICLE AS THE HENRY ALBERT SCIENTIFIC PRESENTATION FOR MARCH 1990



tions is detected by current screening protocols. Two other hormone markers have the potential to significantly increase the detection efficiency in a cost-efficient manner.

AFP is a product of the fetal liver, and it is assumed that in Down syndrome there is decreased synthesis of this protein. A search for other compounds which require fetal liver for synthesis resulted in the observation that unconjugated maternal serum estriol ( $E_3$ ) was 27% decreased in pregnancies of Down syndrome fetuses compared to normals.

An investigation of placental-specific markers has led to the discovery that maternal serum hCG is approximately 2 times elevated in association with most fetal aneuploid conditions compared to normals. Like MSAFP,  $E_3$  and hCG have been shown to be significantly decreased and elevated, respectively, in pregnancies with aneuploid fetuses other than Down syndrome. The striking exception appears to be trisomy 18, in which hCG is not elevated, but rather markedly decreased.

### Preliminary Studies

Collaboration between the FBR staff and a group from London has been most productive in setting the standards for screening programs. Utilizing stored sera from pregnancies of 77 women across the entire age spectrum carrying Down syndrome fetuses, these investigators have significantly improved detection efficiency when risk is calculated based on 4 factors; age, MSAFP,  $E_3$  and hCG.

In 1988, Dr. George Knight, director of the radioimmunoassay laboratory of the FBR, served as a consultant to the Iowa screening program to elaborate these findings and discuss the risk-benefit and cost-benefit aspects of this screening. Tables 1 and 2 are adapted from data he presented to the Medical Advisory Committee of the Birth Defects Institute and staff at the University Hygienic Laboratory.

The notable features of these tables are projected cost savings and overall decrease in the number of amniocenteses required. This presupposes screening will occur across all age groups, including women 35 and above. Heretofore, we have discouraged the use of MSAFP in this age group to attempt to lower a woman's age related risk. Approximately one-half of such women remain candidates for amniocentesis after MSAFP determination, but

TABLE 1  
CLINICAL SENSITIVITY OF SCREENING PROTOCOLS  
FOR DOWN SYNDROME\*

	Maternal Age 35 and Above	Maternal Age < 35 + MSAFP	Maternal Age + MSAFP + $E_3$ + hCG
Sensitivity (Detection Rate)	24%	20%	60%
Initial Positive Rate	5%	4%	6%
Ultrasound Examination	5%	4%	6%
Amniocentesis	5%	2.5%	4%

\*Estimates based on Maine population.

TABLE 2  
COST-BENEFIT AND RISK-BENEFIT  
OF SCREENING PROTOCOLS

	Maternal Age 35 and Above	Maternal Age < 35 + MSAFP	Maternal Age + MSAFP + $E_3$ + hCG
Down Cases Detected/ Amniocentesis	1/143	1/86	1/46
Cost Per Down Case Detected	\$144,000	\$118,000	\$74,000
Fetuses Lost Per Down Case Detected*	0.35	0.22	0.11

\*Assumes loss rate of 1/400 per amniocentesis.

present at a later gestational age. Also, the false negative rate is approximately 15% in this circumstance. By using 3 maternal serum markers there will still be a false negative rate of about 10%, but only 30% of women above age 35 would remain candidates for amniocentesis. This trade-off, involving significantly fewer procedures in this age group, may be acceptable to many patients. Overall, as noted in Table 1, approximately 60% of Down syndrome cases and other aneuploid conditions will be detected by this screening.

Table 2 details the increasing detection efficiency and decreasing costs which have been observed and/or projected as one progresses from amniocentesis for maternal age alone (the

least sensitive criterion), to combining maternal age < 35 and MSAFP, to the combination of maternal age, MSAFP, E<sub>3</sub> and hCG applied across the entire population.

### Applying These Studies

Figure 1 is the screening flow chart which will ultimately be employed in Iowa. As has been the case for lower levels of MSAFP, only the initial value for each of these hormone assays will be used to determine risk, unless the specimen was drawn at less than 15 weeks. The optimal time frame for drawing the specimen is the same as for detection of neural tube defects, 15-18 weeks.

### The Future

It is anticipated that shortly after publication of this article, screening based on the protocol set forth will begin. The 4 variables (age and the 3 maternal serum hormones) will

be used in a complex computerized formula to determine a patient's specific risk for a chromosome abnormality. If, after ultrasound documentation or adjustment of gestational age, this risk is equal to or greater than that of an unscreened 35-year-old woman at mid-gestation, an amniocentesis would be the next step to consider.

As mentioned, fetuses with trisomy 18 are unusual in that MSAFP and E<sub>3</sub> are depressed as expected, but hCG is also quite low. A protocol adjustment designed to flag those few pregnancies associated with a hormone pattern increasing the risk for trisomy 18 will probably be incorporated into the screening mechanism.

Without doubt, more fetuses with chromosome abnormalities will come to attention as a result of this screening. We must remain cognizant of the human faces behind the num-

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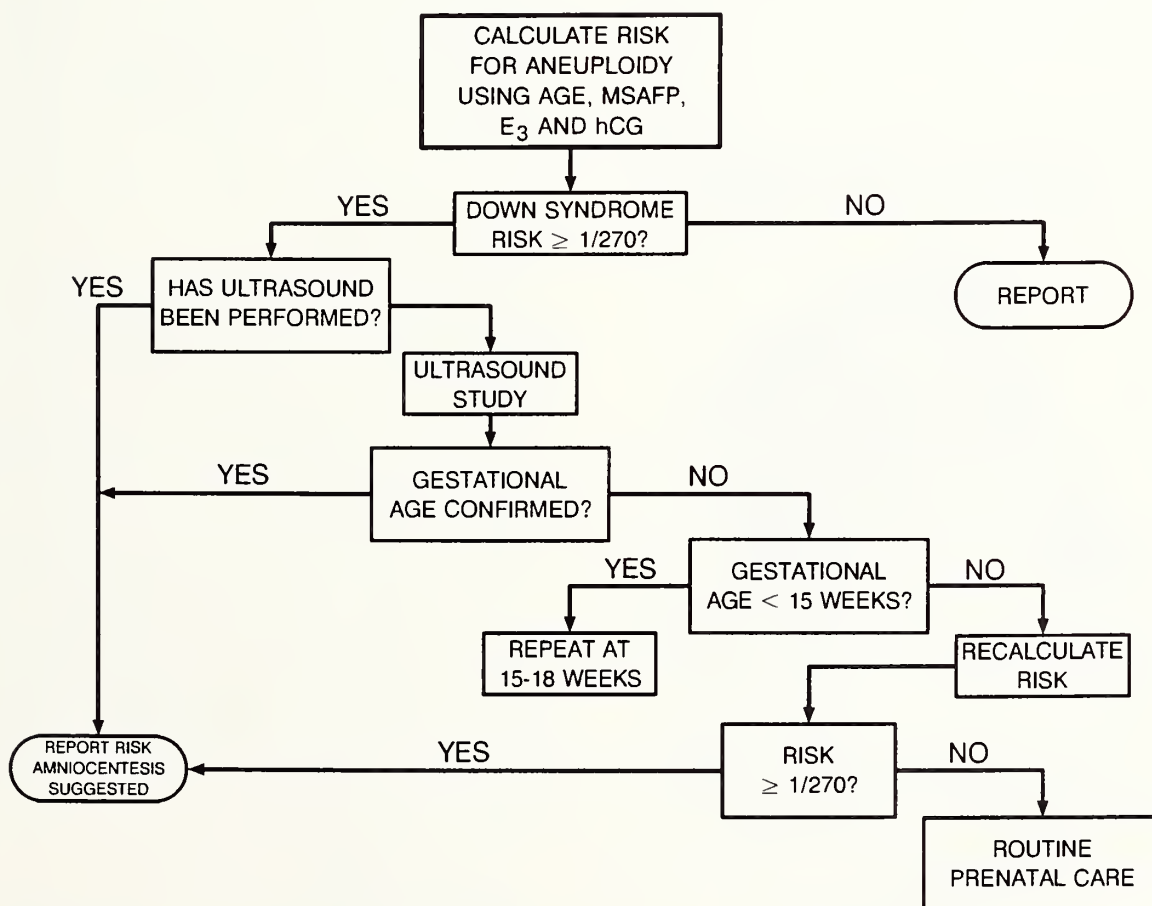


Figure 1. The Down syndrome screening flow chart soon to be in use in Iowa.



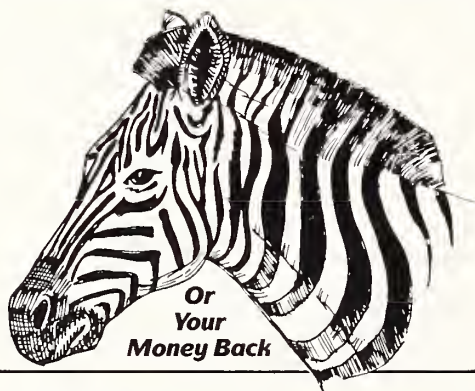
bers. Options must be sensitively dealt with. Efforts are underway to form a statewide support group for couples who have made the decision to terminate the pregnancy of an affected fetus. It is a loss which can be experienced as acutely as that of a stillbirth. Ongoing support is also available for those who choose to continue the pregnancy of an affected fetus.

As these tests are added to the current MSAFP screening, efficiency and coordination of services remain essential. All risk calculations will be performed centrally and phone contact for abnormalities will be expeditiously reported to practitioners' offices with recommendations for further testing. Counseling is available for patients at any point in the screening process. A successful MSAFP program was held in Iowa City in September 1988, targeted primarily at office nurses. Our educational efforts will continue.

As this pregnancy screening evolves, we look forward to working with your offices and assisting your patients in making reproductive decisions. Suggestions for program improvement will always be welcome.

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Please follow the reference list style as published in current issues of *IOWA MEDICINE*. If the reference list contains more than 10 references, it will not be published with the paper but retained at *IOWA MEDICINE* and copied upon request.

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# Pudendal Anesthesia and the Iowa Trumpet

LLOYD D. HOLM, D.O.

Omaha, Nebraska

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*This article reviews the technique utilized in administering local pudendal anesthesia and a history of development of the transvaginal approach and the "Iowa Trumpet."*

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**T**RANSVAGINAL PUDENDAL LOCAL anesthesia has been widely accepted and utilized, and the technique is incorporated into virtually every teaching program. Its history is relatively recent and its origin is obscure beyond Iowa, even within the state. The Iowa Trumpet is probably the last commonly used surgical instrument developed and marketed by a general practitioner. The adage, "Necessity is the mother of invention" certainly applies to development of the transvaginal pudendal nerve block and the Iowa Trumpet.

## *Description and Technique*

The Iowa Trumpet is used by obstetricians to facilitate transvaginal local infiltration of the pudendal nerve just prior to delivery. Pudendal anesthesia's advantages are ease of administration, no depressant effects upon the fetus, no impact upon uterine activity and no adverse impact upon the mother.<sup>1</sup>

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Dr. Holm is a second year resident in obstetrics and gynecology at the University of Nebraska Medical Center, Omaha, Nebraska.

Risks include intravascular injection, hematoma and rarely, an infection at the injection site.<sup>2</sup>

The Iowa Trumpet is an elegant stainless steel device stabilized in one hand thereby allowing the other hand to insert the tip of the syringe into the tissue surrounding the pudendal nerve (Figure 1).

The literature describes 2 methods of administration: both are in use today. The first method requires the obstetrician to grasp the Iowa Trumpet with his *right* hand, pronate the right wrist while simultaneously locating the patient's *left* ischial spine. The shaft of the Trumpet is brought downward and laterally to approximate the long axis of the patient's body and the obstetrician's *right* thumb should be on the patient's *left* buttock (Figure 2).<sup>3</sup>

The second method in use involves using the *left* hand to grasp the Trumpet to infiltrate the tissue around the patient's *left* ischial spine. The hand is oriented in the same manner so one would point with an extended finger (Figure 3).<sup>4</sup>

With both methods the obstetrician injects 3 cc of anesthetic just posterior to the tip of the ischial spine, 3 cc just medial to the tip of the spine and 4 cc through and into the sacrospinous ligament. One should always aspirate prior to injection of anesthetic to avoid injection directly into the pudendal artery.

The chances of successful infiltration and subsequent anesthesia of the pudendal nerve will be increased if the physician palpates the pulse of the pudendal artery that courses with the pudendal nerve. If this vessel is not palpated, the physician should re-confirm the lo-

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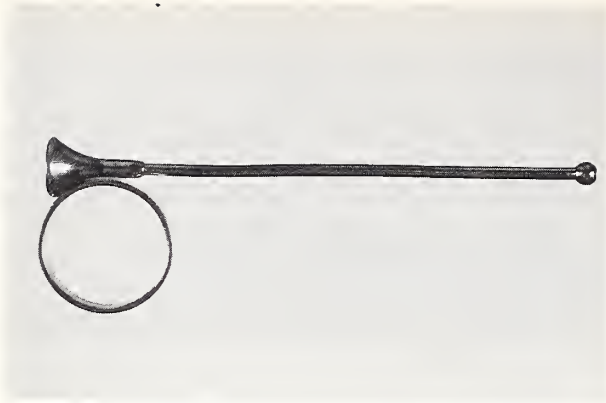


Figure 1. The Iowa Trumpet, used to facilitate transvaginal local infiltration of the pudendal nerve prior to delivery.



Figure 2. In method one, the shaft of the Trumpet is brought downward and laterally to approximate the long axis of the patient's body.



Figure 3. The second method involves using the left hand to grasp the Trumpet to infiltrate the tissue around the patient's left ischial spine.

cation of ischial spine. If locating the ischial spine proves difficult, locate the pulsation of the pudendal artery and follow it anteriorly to the bony pelvis. The ischial spine should be in close proximity.

To achieve optimum results, timing is critical. The block, in the primagravida, should be administered after complete dilatation of the cervix and the vertex is advanced at least to a plus 2 or plus 3 station. The multiparous female will realize optimum results with administration of the anesthetic during late stage I labor. Pinching the perineum with a tissue forceps or Allis clamp on either side will confirm or deny the success of the procedure.

### *History of the Iowa Trumpet*

Prior to the 1950s obstetrical anesthesia left much to be desired in regard to the well-being of the neonate. Conduction anesthesia and spinal and caudal blocks were commonly used. These were excellent means of pain relief, however, the associated complications were well recognized. Hence, the pudendal block was welcomed as a safe but not always reliable means of providing relief of pain. Since its inception the main disadvantage of pudendal anesthesia was its failure to eradicate all labor pain. It is ironic this has become one of its main advantages as obstetrics progressed into the age of Lamaze and "natural childbirth."

Prior to the 1950s pudendal anesthesia was utilized mainly through attempted infiltration of the pudendal nerve paravaginally or transperineally. It was not a precise technique. A study in 1953 authored by Edward Klink, M.D., now of Rockford, Illinois, eloquently and accurately for the first time described the anatomical distribution and relationship of the pudendal nerve in the female pelvis.<sup>5</sup> Delineation of the pudendal nerve anatomy allowed evolution of the technique transvaginally, which was first utilized in 1950 and reported in 1956.<sup>6</sup> The transvaginal approach was more effective, but guiding the needle required much skill. Equally troublesome was the threat of lacerating or puncturing the guiding finger.<sup>7</sup>

James G. Lee, M.D., of Shawnee Mission, Kansas, a 1949 graduate of the University of Iowa obstetrics and gynecology residency program, at the time in practice in Kansas City, utilized the transvaginal technique as described in the current obstetrical literature.<sup>8,9</sup> While



Figure 4. James Lee, M.D., a graduate of the U of I College of Medicine, designed the "Kansas Arrow," the forerunner of the Iowa Trumpet.

mowing his lawn in the late 1950s, he looked down at the throttle cable and sleeve and envisioned a similar sleeve to guide the needle in administering transvaginal local anesthesia. He went to the hardware store, purchased copper tubing and fashioned a hollow tube about 1/2 inch shorter than a spinal needle. After having a few of these sterilized (attempt that today!) he tried them out. Pleased with the outcome, he had several stainless steel models manufactured (Figure 4). This contribution to obstetrics was "written up in the Grey Journal."<sup>10</sup>

Had it not been for Dan Egbert, M.D., of Fort Dodge, Iowa, the Iowa Trumpet might have been forever known as the "Kansas Arrow." While attending a lecture by Dr. Lee on his transvaginal technique, Dr. Egbert became intrigued by the device and its potential. Dr. Egbert remembers that a former colleague, Dr. Glesne, also of Fort Dodge, Iowa, could "always hit the ischial spine, but damned if I could!" All of the key figures agree the final form of the Iowa Trumpet should be credited to Dr. Egbert.<sup>11-14</sup> After receiving permission from Dr. Lee, Dr. Egbert modified the needle guide by attaching a ring from a syringe at one end along with a funnel to serve as a needle guide.<sup>15</sup> After working with several prototypes, the finished product contained the thumb ring, funnel needle guide and finger bulb (Figure 5).

The developmental period spanned 2 years in the early 1960s. With the assistance of a local machinist, Glen Evans, the Iowa Trumpet was

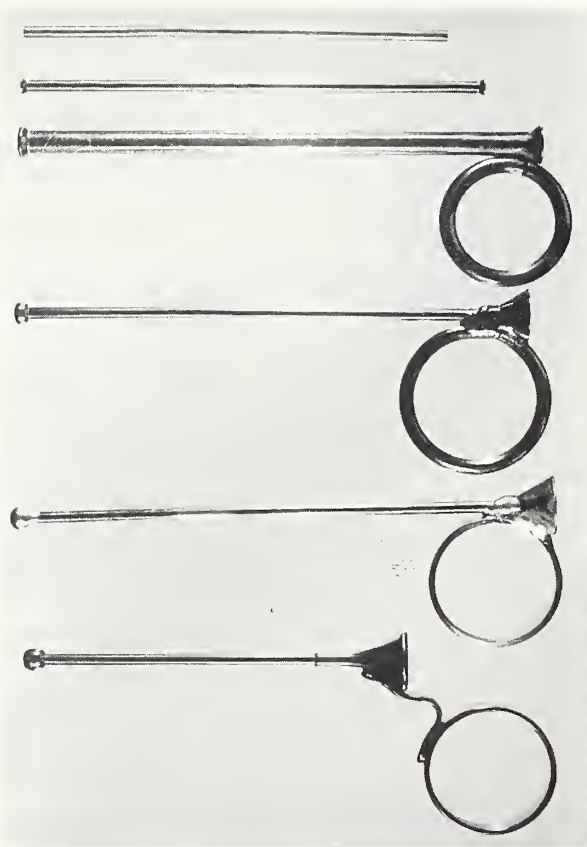


Figure 5. Dr. Egbert worked with several prototypes before creating what is today known as the Iowa Trumpet.

manufactured and distributed by the Iowa Medical Supply Company of Fort Dodge. Attempts to patent the Iowa Trumpet were unsuccessful, but the success of the instrument can never be questioned. Dr. Egbert has lectured and demonstrated the Trumpet around the world. In Russia, the physicians were more interested in the syringe, having not seen such a fine instrument before.<sup>16</sup>

Any regrets? Dr. Egbert is most content with the course of events. There was a profit that paid for his children's college education (quite an accomplishment by today's standards) and the opportunity to visit and lecture around the world on a device of his own design — not bad for a general practitioner from Fort Dodge, Iowa.

## References

References noted in this article are available either from the authors or the editors of *IOWA MEDICINE*.



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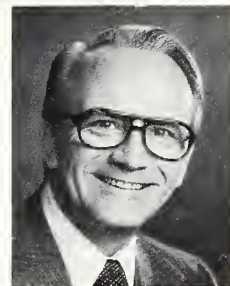
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## Obstetrics, Past to Present

**T**HE HISTORY OF OBSTETRICAL CARE is a fascinating story of cultural and medical advancements. Midwifery was not always the domain of physicians, though learned scholars of medicine were concerned with the mysteries of pregnancy and childbirth. It was not until the 19th century that the dilemma of puerperal fever was solved. The scholars of obstetrics before that time were concerned, pondered over it, but lacked knowledge of disease prevention.

There have been numerous pioneers of obstetrics and gynecology who provided stepping stones to the modern care of women. Let us take a brief venture through milestones which led to present knowledge of pregnancy and birthing.

Soranus of Ephesus (Roman, 2nd century AD), a follower of the Methodist school of Asclepiades, was the leading authority on obstetrics, gynecology and pediatrics of antiquity. The obstetric chair and podalic version have been ascribed to Soranus.

Paul of Aegina (Greek, 625-690) summarized in his writings all that was known of obstetrics and pediatrics from classical antiquity to the Renaissance. Though historians search in vain for anything original in his work he was nevertheless regarded as an authority on midwifery and surgery. Most of his writings were from the works of Hippocrates, Galen, Soranus and others.

Fifteenth century art often depicted scenes of the lying-in chamber. A room filled with numerous people represented some in the act of delivery, others in various avocations of healing arts. In the foreground was a nursemaid bathing the newborn.

The worst phase of 16th century Renaissance medicine was obstetric care. Puerperal

fever and eclampsia were rampant; midwives were filthy, nondescript, unkempt, alcoholic "butchers." Vagabond surgeons only added to the high mortality rates. Interestingly, in 1580 a law was enacted in Germany forbidding shepherds and herdsmen from attending obstetric cases. Infant mortality was high because of poor public, domestic and personal hygiene. Later in the century concepts of public health and personal hygiene became a social issue.

Seventeenth century obstetrics presented an improved understanding of the anatomy and process of labor and birthing. Leyden, Paris and Montpellier were the great centers of medical education. The early years of the 17th century were noteworthy by the renown work of William Harvey (1578-1657) "the father of British midwifery." Francis Mauriceau (1637-1709) was the foremost French obstetrician. He substituted the bed for the birthing stool. Also he deplored the shaking and pummeling of the woman in attempts to hasten labor.

The 18th century is noted for several brilliant medical scholars. In England were the Hunter brothers, William and John. William Hunter (1718-1783) was noted for his passing of labor cases from midwives to trained male obstetricians. Modesty of the women was relaxing, allowing a male physician to be involved with the intimate aspects of childbirth. Education of future obstetricians was enhanced by William Smellie (1697-1783) who used a leather covered mannequin to teach the art of delivering infants. William Hunter was a student of Smellie, and he collaborated with his brother John Hunter, a surgeon, in publishing an atlas of

*(Continued next page)*



the pregnant uterus and reporting his discoveries on the separate maternal and fetal circulations. Incidentally, Smellie introduced a couple types of obstetric forceps and his book "Midwifery" (1752) was the first to lay down rules for the use of forceps.

The 19th century presented the first notable contributions in obstetrics by Americans. The dilemma of puerperal fever was solved. Concepts of the cause and prophylaxis of this devastating condition was of concern to the great medical scholars of Vienna. In England, Doctor Charles White encouraged scrupulous cleanliness in dealing with cases of puerperal fever. In 1843 Oliver Wendall Holmes read to the Boston Society of Medical Improvements his paper "On the Contagiousness of Puerperal Fever," wherein he warned that women in labor should not be attended by a physician who had proven contact with a case of puerperal fever. He further advocated the physician washing his hands with calcium chloride solution and changing clothes between cases.

In Philadelphia there was violent opposition from Hugh L. Hodge and Charles D. Meigs. However, a second paper by Holmes in 1855 and the monumental work by Ignaz Philipp Semmelweis in 1861 "Cause, Concept and Prophylaxis of Puerperal Fever,"

eventually put the question at rest, but not without violent controversy which ultimately left Semmelweis a broken and insane man.

From the astute observation of Hippocrates to the work of Semmelweis the scourge of childbirth was solved. With the turn of the next century obstetrics entered a preventive medicine phase with total perinatal care. Today's antibacterial drugs and increased concern by those who attend women in labor have made childbirth less hazardous.

Our vigilance cannot be lessened because the worldwide infant mortality rate must be improved. Society must realize optimum perinatal care involves cooperation of the woman. All pregnancies must be attended by good medical care, good dietary measures and conscientious concern by the woman. For the welfare of the unborn infant, this involves abstaining from drugs, alcohol and tobacco. We must foster these concepts as part of medical care. — M.E.A.

## Twenty Years As Editor

This month marks the twentieth year Dr. Marion Alberts has served as Scientific Editor of *IOWA MEDICINE*. IMS officers and staff extend their gratitude to Dr. Alberts for his invaluable service to the magazine.

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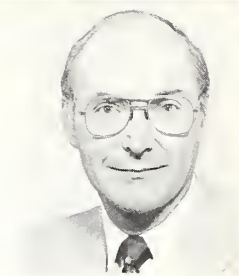
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## Richard M. Caplan, M.D.

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CME Notebook



# CME Ethics, Continued

**L**AST MONTH I RAISED some questions to draw attention to (un)ethical practices in the world of CME. Because of an invitation that recently came to me, I decided to "sound off." I hope my letter, printed here, will prompt you to some personal reflection on this issue. Of course, I hope you agree, or will come to agree. If you do, please join my little crusade at each opportunity, and you have many. I was cheered at a recent meeting of the IMS Education Committee that the members agreed with me and in fact suggested I use this column (once, anyway) for this purpose. (I chose to eliminate the name of the addressee and his company, *this time*, from the letter.)

Dear Mr. \_\_\_\_\_, President:

My mail has brought me what seems a kind invitation from your company. You offered travel, hotel accommodations, meals, and other arrangements for me and my guest to attend a meeting in Naples, Florida, where I would spend 3½ hours on 2 mornings to hear (presumably) scientific talks about antihistamines for antiallergic therapy and trials of your new drug, \_\_\_\_\_.

Such an offer seems not merely kind, Mr. \_\_\_\_\_, but I also consider it unethical. If that word seems harsh, perhaps you might prefer "payola" or "bribery." I'm sorry if my reaction, and my honesty in reporting it to you, either surprise or offend you. But I believe you deserve to know that there are at least some of us physicians who recognize your all-too-transparent effort to buy my interest and allegiance for your product.

As director of continuing medical education for a college of medicine, I have a large personal and professional commitment to help educate the community of practitioners about new drug products. Neither my college nor I are philosophically opposed to accepting educational grants from your company or others, as long as you do not try to dictate program personnel or content. I do not protest that you advertise in journals, or that you send company representatives to "help educate" me. So the line between appropriate and inappropriate is sometimes, I grant, hard to discern. But an expense paid trip to Florida for me and my guest? — come now, Mr. \_\_\_\_\_, that is clearly beyond defending. That such practices by pharmaceutical and equipment manufacturing companies are increasing, and that there are physicians who accept such invitations is not a justification; it is rather cause for great lamentation. The great majority of my physician colleagues, I believe, can afford to pay for their own vacation trips, rather than receive them in such a tainted fashion, using your company's funds which all-too-obviously must come from the pockets of patients. That this practice was recently described and condemned on the pages of the *New York Times Magazine* (November 5, 1989, page 88) might perhaps help awaken you to the response of the paying public.

I would wish the nation's pharmaceutical companies might realize that the mode of advertising I am reacting against, challenging as it does the integrity of the medical profession, is not in the best interests of the company, the physicians, or the public. Naturally, I would be happy to hear from you.

Sincerely,

Richard M. Caplan, M.D.  
Associate Dean for Continuing Medical  
Education

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Dr. Caplan is Associate Dean for Continuing Medical Education at the University of Iowa College of Medicine.



## The Nancy Cruzan Case

**M**ORALITY AND LEGALITY are not the same thing; yet the fields of biomedical ethics and health law frequently overlap in their concerns. Legal cases are often important for the ethical issues justices address as well as for the legal conflicts they adjudicate.

The Nancy Cruzan case currently before the U.S. Supreme Court is a case in point. Nancy Cruzan was 26 in January, 1983, when she had a single-car accident in southwest Missouri. She was thrown from the car and was thought to be dead when a state trooper found her body. However, paramedics arriving at the scene 12-15 minutes later used CPR to restore her cardiac function and respiration.

Cruzan never regained consciousness. Later in 1983 a gastrostomy tube was implanted and she was transferred to a rehabilitation facility. Three years later her parents (with the agreement of her 2 adult siblings) requested that the gastrostomy tube feedings be stopped. The physicians and hospital administration refused.

The Cruzans initiated court action and a trial court judge ruled that terminating the tube feedings was legally permissible. The Missouri Supreme Court, disregarding over 50 judicial decisions in 25 other jurisdictions, reversed the lower court decision and ruled in November, 1988, that the termination of the gastrostomy feeding on the behalf of the nonautonomous patient was not legally permissible.

Nancy Cruzan has been in a vegetative state for 7 years. Her case is the first right-to-die case the U.S. Supreme Court has heard. The legal issues are of great importance.

The case also includes several ethical questions concerning the decisions surrogates

of nonautonomous patients, in consultation with physicians, have to make for those patients regarding the initiation, continuation or abatement of life-sustaining treatment.

Are nasogastric tubes, gastrostomy tubes and other forms of tube feeding to be regarded as life-sustaining medical treatment (not morally or legally different from antibiotics or ventilators), or are they to be regarded as basic, nonmedical care (like feeding by hand)? The majority of ethicists, attorneys, courts, health-care organizations and interdisciplinary panels that have addressed this question agree tube feedings are forms of medical treatment whose benefits and burdens to patients should be assessed in the same manner other forms of medical treatment are assessed.

Who should make decisions to abate life-sustaining treatment on behalf of a nonautonomous patient? The patient's surrogate should be someone selected by the patient prior to losing decision-making capacity or, if the patient made no selection, the person (a relative or close friend) most capable of representing the patient's perspective.

What is the appropriate standard for surrogates to use in making such decisions? The patient's previous preferences should guide the decision, if those preferences are known (through an advance directive or reliable oral reports) and apply to the current situation. If such preferences are not known, the patient's best interest should guide the decision.

Is there any moral or legal difference between withholding and withdrawing life-sustaining treatment? Although there are psychological differences physicians and nurses understandably experience, there are no moral or legal differences between these decisions if the decisions are based on the patient's preferences or best interests.

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This column is written by Robert Weir, Ph.D., director of biomedical ethics for the University of Iowa College of Medicine.



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## Don't Play Russian Roulette

**I**MAGINE WAKING UP TO DISCOVER your practice has been fined thousands of dollars for just a few errors in pricing your services. That nightmare is a reality for a growing number of nonparticipating physicians who are unable to keep up with Medicare Maximum Allowable Actual Charge (MAAC) regulations.

A recent study of a Midwestern practice analyzed the 10 most common procedures of each physician provider. The physicians were in violation of MAAC regulations in 47% of their procedures which translated to \$800,000 to \$900,000 in possible fines. Fee increases were possible in another 50% because fees were below MAAC rates. Examination of the use of Common Procedural Terminology (CPT) codes revealed a need to correct errors, plus the potential of increasing fees through unbundling codes and using correct modifiers.

This example highlights the importance of keeping up-to-date on MAAC guidelines. Nonparticipating physicians risk bankruptcy due to MAAC limit violation fines. Each time a practice charges a fee even one penny over its MAAC limit, there is a risk of a \$2,000 fine. Considering that even a small practice may use dozens of CPT codes each day, the ramifications are significant.

Regulatory agencies are committed to increase enforcement of the MAAC program. Blue Cross and Blue Shield indicates it will step up efforts to audit for compliance. Health Care Financing Administration (HCFA), which oversees use of procedural codes, is increasing staff. Because carriers are mandated to ensure compliance, all providers are audited on a schedule determined by the carrier. If served with notification of MAACs violations, the

physician has only 15 days to respond to the charges. Non-response could result in the case being forwarded to the office of the Inspector General for imposition of fines or sanctions.

Although participating physicians aren't at risk for MAAC violation fines, they must also pay careful attention to CPT codes. For example, if the CPT code for a diagnostic procedure is listed on a claim without the correct treatment code, the carrier may refuse to pay. Reliance on "comprehensive" CPT codes to save paperwork can cost a practice thousands in disputed and unpaid claims.

CPT codes are changed and expanded each year and office managers find the task of keeping up with these changes overwhelming. Many practices are working with outdated manuals. Obviously, it is important that you carefully examine your fee schedule at least once each year, matching procedures with MAACs and refining your use of codes.

### *Risk Assessment*

The first step to ensure compliance with Medicare procedure is risk assessment. Medicare fee management involves locating and correcting MAAC violations and recommended expansion of CPT code use where possible to maximize billings. In some cases, MAACs have been miscalculated and it is possible to petition the insurance provider for adjustment. The assessment process can also help to determine the cost and benefits of participation in Medicare.

Both participating and nonparticipating physicians should consider Medicare fee management as a means of insuring full fee realization. Nonparticipating physicians need to take an even closer look at this area. It could mean the difference between a secure practice and a game of MAAC Russian roulette.

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This article was written by Scott Strachan, a consulting manager with McGladrey & Pullen, Des Moines.

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# Sustained-Release Dosage Forms

**F**EBRUARY'S ARTICLE GAVE AN OVERVIEW of the rationale for sustained-release preparations. It addressed the common technologies used in oral sustained-release products and reviewed some common clinical problems associated with their use. This month's column focuses on transdermal delivery of therapeutic agents and reviews the products available in this form.

## *Transdermal Drug Delivery*

Transdermal delivery of drugs as a principal means of sustained-release drug delivery has recently received significant attention. The transdermal route has many advantages not available by any other route of administration. First, the perfusion of skin structures, unlike the GI tract, is supplied by post-hepatic blood flow. Therefore, drugs absorbed via the skin are not subject to extensive first pass metabolism which can often significantly reduce bioavailability or shorten the half-life of drug in plasma. Secondly, transdermal delivery is non-invasive and can be made very elegant and acceptable to the patient. Finally, the non-invasive character of the transdermal route allows for rapid removal of the delivery form at any time, a safety feature not available in oral or parenteral routes of administration.

The upper layer of the skin epidermis, the stratum corneum, is the principle barrier to transdermal drug delivery. The stratum corneum is a mixed structure composed of keratinized cells and lipids. Drug penetration and absorption into the circulation is thought to occur by either polar or lipophilic pathways depending on the drug's hydrophilicity or lipophilicity. Compounds which are either

highly insoluble in water and/or have very low lipid solubility will have low rates of diffusion through the stratum corneum. Molecular size will govern the passage of drug as well; the upper limit of molecular weight for drug diffusion through the skin is about 800 to 1000 daltons.

Topical application of medication as creams and ointments to obtain a systemic effect has been used in treatment of disease for centuries. A widely utilized topical preparation, nitroglycerin ointment, has been available for about 30 years. Unfortunately, effectiveness of these formulations is limited by improper use and poor patient compliance. In addition, since the skin serves as the rate-controlling membrane for drug delivery from these products, actual dose delivered is dependent on a variety of factors including hydration status of the skin, the integrity of the skin surface, depth and area over which ointment is applied, as well as the extent of skin penetration.

A major advance in transdermal delivery of drugs has been the design of small, adhesive patch or transdermal delivery systems (TDS) containing the drug that can be worn comfortably and imperceptively on the patient's skin. Advantages of the drug administered by TDS include greater patient convenience and improved compliance. In addition, TDS delivers a relatively constant amount of drug minimizing fluctuations in plasma concentrations associated with intermittent drug administration which, as reviewed earlier, may reduce toxic and enhance therapeutic effect.

Several structurally unique forms of TDS have been developed. These are TDS with drug contained in a membrane-sealed (moderated) liquid reservoir, in a polymeric (semi-solid)

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This article was written by Douglas Geraets, Pharm.D. and Timothy Burke, Pharm.D. of the University of Iowa College of Pharmacy. It was edited by John Kasik, M.D.

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### MEMBRANE-MODERATED TRANSDERMAL DRUG DELIVERY SYSTEMS

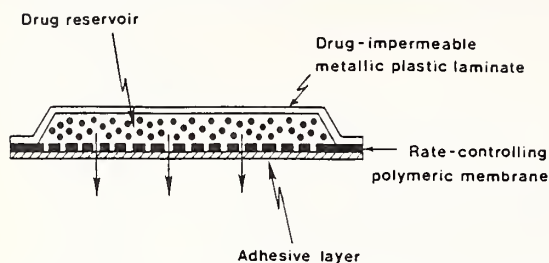


Figure 3. Cross-section view of membrane-sealed liquid reservoir system showing major structural components. From Chien YW with permission.

### MATRIX DISPERSION-TYPE TRANSDERMAL DRUG DELIVERY SYSTEMS

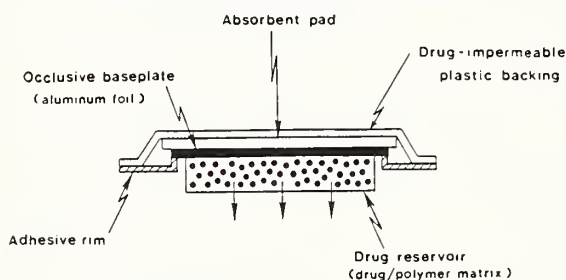


Figure 4. Cross-section view of matrix-dispersion system showing major structural components. From Chien YW with permission.

### ADHESIVE DIFFUSION-CONTROLLED TRANSDERMAL DRUG DELIVERY SYSTEMS

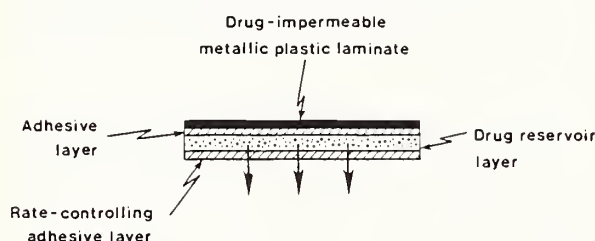


Figure 5. Cross-section view of adhesive diffusion-controlled system with major structural components. From Chien YW with permission.

### MICRORESERVOIR-TYPE TRANSDERMAL DRUG DELIVERY SYSTEMS

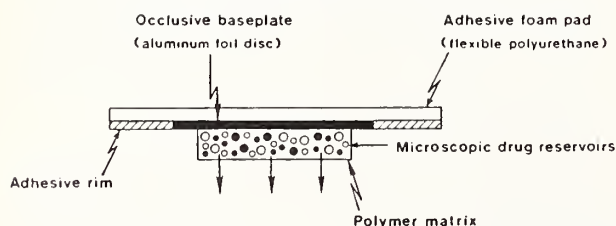


Figure 6. Cross-section view of microreservoir type system with major structural components. From Chien YW with permission.

matrix, in an adhesive diffusion-controlled polymer, or in a microreservoir ("micro-sealed") drug delivery system. Drug contained in the reservoir-type system must migrate across a rate-moderating membrane (e.g., ethylene vinyl acetate copolymer which is permeable to drug) from the reservoir to the absorption site (Figure 3). Should the rate-controlling membrane be torn or cut the reservoir system is susceptible to "dose-dumping" (or relatively rapid release of the entire reservoir of drug). Therefore, the reservoir TDS *should not be cut or punctured*.

In the matrix system, the drug is uniformly dispersed throughout a hydrophilic or lipophilic polymer matrix system from which it slowly diffuses following a concentration gradient to the site of absorption (Figure 4).

The third type of TDS is an adhesive diffusion-controlled TDS (Figure 5). The drug is released from an adhesive polymer drug reservoir. The medicated adhesive is then spread onto a drug-impermeable metal/plastic laminate. Usually, a layer of non-medicated rate-controlling adhesive polymer is added to provide adhesion and diffusion control.

The fourth TDS technology is a microreservoir-type which consists of a suspension of the drug solids in an aqueous solution of water-soluble liquid polymer (Figure 6). This dispersion of drug in liquid polymer is thermodynamically unstable and stabilized by cross-linking the polymer chains *in situ*. Unlike the liquid reservoir system, in the latter 3 technologies there is no danger of "dose-dumping" should the systems become punctured or cut.

The variety and characteristics of TDS patches available commercially are detailed in Table 2. It includes products currently available for use at the time this article was written.

## Individual TDS Products

Scopolamine in a reservoir system (TransdermScop®) became the first therapeutic agent introduced as a TDS. It was approved by the FDA in 1980 and became available in 1981. TransdermScop® provides controlled delivery of scopolamine over a 3-day period and prevents motion sickness. Clinicians have reported its potential usefulness for symptomatic supraventricular bradyarrhythmias, excess salivation and drooling, as a component in antiemetic regimens and to inhibit gastric acid secretion.

**TABLE 2**  
**VARIOUS FEATURES OF TRANSDERMAL DELIVERY SYSTEMS**

<i>TDS System</i>	<i>Manufacturer</i>	<i>TDS Type</i>	<i>Total Drug Content (mg)</i>	<i>Drug Releasing Surface Area (cm<sup>2</sup>)</i>	<i>Labeled 24-Hour Delivery Rate (mg)</i>
Scopolamine TransdermScop®	Ciba	Reservoir	1.5	2.5	0.17
Nitroglycerin Transderm-Nitro®	Ciba	Reservoir	12.5	5	2.5
			25	10	5
			50	20	10
			75	30	15
Nitro Dur®	Key	Adhesive diffusion	20	5	2.5
			40	10	5
			60	15	7.5
			80	20	10
			120	30	15
Nitrodisc®	Searle	Microreservoir	16	8	5
			24	12	7.5
			32	16	10
Deponit®	Wyeth-Ayerst	Adhesive diffusion	16	16	5
			32	32	10
Nitrocine®	Schwarz Phar Kremers-Urban	Matrix dispersion	62.5	10	5
			125	20	10
			187.5	30	15
Minitran®	3M Riker	Adhesive diffusion	9	3.3	2.5
			18	6.7	5
			36	13.3	10
			54	20.0	15
Nitroglycerin Transdermal System	(Various)	(Various)	62.5	10	5
			125	20	10
			187.5	30	15
Clonidine Hydrochloride Catapres-TTS®-1	Boehringer-Ingelheim	Reservoir	2.5	3.5	0.1
Catapres-TTS®-2			5.0	7.0	0.2
Catapres-TTS®-3			7.5	10.5	0.3
Estradiol Estraderm®	Ciba	Reservoir	4.0	10	0.05
			8.0	20	0.1
Salicylic Acid Trans-ver-Sal™	Minnetonka-Medical	Matrix dispersion	6.75	0.3	6.75
Trans-Plantar™			45	3.1	45

The most frequent side effect of TransdermScop® is dryness of mouth in up to two-thirds of patients and drowsiness in one-sixth. The severity of these side effects has been less intense than after use of intramuscular scopolamine. Numerous reports of psychotic reactions (extreme agitation, confusion, paranoid behavior, hallucinations) to transdermal scopolamine have also been reported and are most frequent in children and the elderly. Caution should therefore be applied when scopolamine is used in these age groups.

Nitroglycerin TDS have generated the greatest amount of attention and perhaps the

most widespread use of any similar product. Three different nitroglycerin TDS for treatment of ischemic heart disease were introduced to the market in 1982. Presently, there are at least 6 different products available with additional companies planning products in the future. Each transdermal product is intended to deliver a constant amount of nitroglycerin over a 24-hour period.

When nitroglycerin patches were approved for use, clinical trials documenting the efficacy of nitroglycerin TDS were limited. Product efficacy was inferred from data which

*(Continued next page)*



documented plasma concentrations of drug achieved and maintained while wearing the patches. This approach was temporarily accepted by the FDA while final approval awaited proven efficacy in controlled clinical trials. Subsequent, controlled trials in patients with ischemic heart disease produced conflicting results and reports questioned the ability of nitroglycerin to provide sustained beneficial hemodynamic effects in congestive heart failure began to appear.

What followed were jointly sponsored studies by the patch manufacturers (Shering/Key, Ciba-Giegy, and Searle) in cooperation with the FDA. The studies were designed to answer questions about efficacy and tolerance with continuous 24-hour administration of nitroglycerin. Results of these studies, only recently available, clearly established tolerance occurs with continuous dosing. A separate study evaluating intermittent dosing documented that it could reduce the tolerance to the drug seen with continuous dosing but a decreased response may occur during the period following the nitrate-free interval just prior to the next dose. It has now been recommended the FDA regulatory status of nitroglycerin TDS be upgraded from "conditional" to "full approval" and that nitrate labeling should suggest intermittent dosing.

### ***Adverse Effects***

The most frequent adverse effect of transdermal nitroglycerin has been mild localized skin reactions with skin irritation occurring at 40% to 70% rate. Skin irritation can be reduced by regularly rotating application sites and contact dermatitis may resolve upon substitution of a different brand patch.

In the treatment of hypertension, clonidine transdermal therapeutic system (Catapres-TTS®) is the only product of its kind. Catapres-TTS®-1, -2, and -3 delivers 0.1, 0.2, or 0.3 mg over 24 hours, respectively, for a week per patch. Plasma concentrations from the patches are similar to trough concentrations obtained after twice daily oral administration of clonidine. Approximately 60% to 85% of patients with mild to moderate hypertension can be controlled on transdermal clonidine alone. In addition, it is also as effective as oral clonidine in mild to moderate hypertension when given in combination with thiazide diuretics.

Clinicians should be aware that antihypertensive activity may be delayed 2 or 3 days after initial application of the clonidine patch due to accumulation of drug in skin and binding to skin proteins. The clonidine patch has been generally well tolerated with only minor, usually transient side effects. Dry mouth occurs in about one-third of patients and drowsiness in another one-fourth. These effects are usually less severe than those from oral administration and rarely result in drug discontinuation.

The major problem associated with transdermal clonidine has been skin reactions: transient skin irritation or allergic contact dermatitis. These reactions can occur at any time during therapy and sometimes necessitate discontinuation of the patch. Contact dermatitis with local erythema and pruritis occurs in as many as 50% of patients during chronic therapy. Obviously, skin irritation will be minimized by changing the site of application. If a skin reaction requires withdrawal of the system, oral clonidine can be substituted with minimal incidence (<1%) of cutaneous reaction or systemic allergic reaction. Finally, cases of rebound hypertension upon substitution of transdermal for oral clonidine and discontinuation of therapy after prolonged transdermal clonidine therapy have been reported. Frequent monitoring of blood pressure would be advisable for at least one week following substitution of transdermal for oral clonidine and a gradual dosage reduction is recommended if Catapres-TTS® is to be discontinued.

Recent reports suggest transdermal clonidine may be useful in reducing the frequency, severity, and duration of menopausal hot flashes. In addition, evidence that transdermal clonidine is useful for suppressing nicotine withdrawal symptoms upon smoking cessation would suggest other potential uses for this device.

A transdermal form of estradiol (Estraderm®) for estrogen replacement therapy has recently been introduced. Transdermal estradiol has FDA approval in the treatment of postmenopausal vasomotor symptoms, female hypogonadism and castration, primary ovarian failure and atrophic conditions caused by deficiency of endogenous estrogens. The estradiol TDS is applied twice weekly and is as effective as oral conjugated estrogens in doses of 0.625 mg/day or 1.25 mg/day in al-

TABLE 3  
ADMINISTRATION GUIDELINES FOR TDS

TDS System	Recommended Application Area	Starting Dose	Dose Interval (Days)	Maximum Recommended Dose
TransdermScop®	Behind one ear	1 patch at least 4 hrs before needed	3	1 patch
Nitroglycerin	Upper arm/chest	5 mg/day	1	As needed
Catapres-TTS®	Upper arm/chest	0.1 mg/day	7	0.6 mg/day
Estraderm®	Trunk of body (avoid breasts)	0.05 mg patch	3	0.1 mg
Trans-Ver-Sal™	Verruca vulgaris lesions	1 patch (trimmed to accommodate wart size)	Overnight (~ 8 hours)	1 patch nightly for 6 to 12 weeks
Trans-Plantar™	Verruca plantar lesions	1 patch (trimmed to accommodate wart size)	Overnight (~ 8 hours)	1 patch nightly for 3 to 12 weeks

leviating post-menopausal symptoms. In addition, transdermal estradiol has been shown to reduce bone turnover and may have efficacy in protecting against postmenopausal bone loss.

Adhesion of transdermal estradiol patches for patients in clinical trials has been excellent. The most common side effect has been mild to moderate (frequency  $\approx 20\%$ ) irritation at the site of application. Rotation of the application site can reduce the skin irritation while the application of the patch to the buttocks virtually eliminated it. Incidence of other side effects (breast tenderness, spotting, breakthrough bleeding, abdominal bloating and irritability) has been similar to that of oral estrogens. Nausea, however, may be less common than with oral estrogen therapy.

The last transdermal application listed in Table 2 is a salicylic acid TDS (Trans-Ver-Sal™ and Trans-Plantar™) very recently available for local treatment of verruca vulgaris (common wart) and verruca plantaris (plantar wart), respectively. These devices contain salicylic acid in an adhesive patch composed of non-sensitizing karaya, polyethylene glycol, propylene glycol and quaternium-15. They are designed to be applied topically to verrucous tissue and provide constant and controlled-release of drug over an 8-hour period. In addition, each patch is covered with a polyethylene moisture barrier which produces a beneficial occlusive effect.

Limited clinical studies suggest transdermal salicylic acid is effective for the treatment of common verruca infections. Successful treatment (totally cured) was obtained in 86.5%

and 69% of patients in 2 studies compared to 35% of patients treated with control patches. The only adverse effect reported to date has been minor irritation of the skin surrounding the wart. This has resolved with temporary discontinuation of therapy for 1 or 2 days and then resumption with proper trimming of the patches to avoid contact with the normal tissue.

### Administration Guidelines

Table 3 summarizes general administration information for TDS systems reviewed. All products are accompanied by an illustrated, detailed patient instruction brochure. As a general rule, all TDS patches should be applied to a clean, dry, hairless region of the body and the site rotated with subsequent applications to reduce the risk of skin irritation. Preferred sites of application are listed in Table 3. According to the manufacturers, patients may bathe or shower while wearing the patches since contact with water will not effect the TDS. If a TDS is accidentally removed, the detached TDS should be reapplied (or a new patch applied) but without altering the dosage schedule.

Each device is designed with a protective, impermeable outer liner, however, accidental skin transfer and ingestion has resulted in intoxication to children. Patients with contact to children should apply these systems on inaccessible parts of the body, to keep them covered when in contact with children, and to appropriately dispose of used patches.

(Continued next page)



Patients should wash their hands after application of patches, especially the scopolamine TDS, to avoid inadvertent exposure to the drug. Patches should not be cut or altered to adjust the dose since the effect this might have on absorption characteristics is unknown. This is especially important for the reservoir-type systems in which case cutting the patch would cause "dose-dumping."

Nitroglycerin and clonidine patches must be removed before attempting direct current cardioversion or defibrillation of a patient. Current arching (current passing between paddles and patch) which can render defibrillation ineffective has occurred with patches in place on the chest during these procedures. Finally, the patches are contraindicated in patients hypersensitive to active components or to any component of the adhesive layer.

### Summary

Transdermal drug delivery provides an effective and advantageous alternative to the oral delivery of therapeutic agents. Currently, many

other drugs are being evaluated for transdermal delivery including testosterone, fentanyl, nicotine and timolol. They offer the promise of simplified dosage regimens, enhanced compliance, reduced side effects and improved therapy of disease.

### Further Reading

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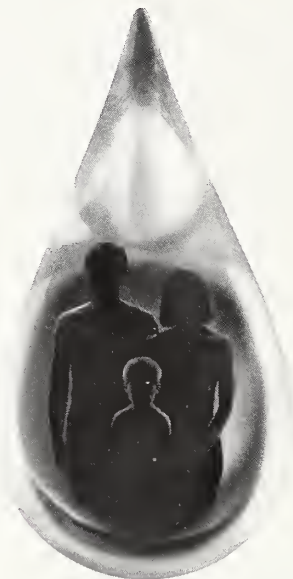




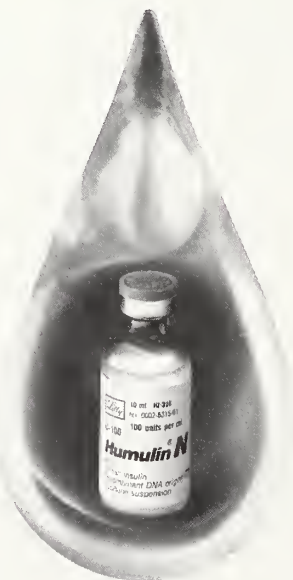
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## Improving Prenatal Care

**B**ECAUSE IOWA'S RATE OF infants born under at-risk conditions remains unacceptably high, the Iowa Department of Public Health (IDPH) accepts the challenge of improving the health status of mothers and infants. The philosophy of IDPH is "healthy mothers give birth to healthy babies."

IDPH is active in ensuring health services are provided to all women, especially low income women and infants who are least likely to get the health care they need. According to a 1988 study, 12% of Iowa's population is uninsured and another 9-21% is underinsured.

### *Outreach Objectives*

The Maternal and Child Health Bureau (MCH) of IDPH is currently launching a major outreach effort to reach low income families. Outreach objectives are to:

- Educate pregnant women about the importance of early prenatal care and what they need in order to increase their chances of having a healthy baby;
- Publicize the availability of IDPH maternal services for eligible women; and
- Motivate pregnant women to establish healthy habits and to use appropriate services during their pregnancies.

Early, consistent and adequate health care during pregnancy gives babies the chance of a lifetime. Yet, one-third of all infants in the U.S. are born to mothers who do not receive adequate prenatal care. These infants, more likely to be born prematurely and of low birthweight, are at an increased risk of death and lasting health problems.

Low birthweight babies account for most infant deaths. Survivors are at risk for condi-

tions such as chronic lung disease or nervous system disorders which range from mild learning disabilities to severe mental retardation and cerebral palsy.

To improve the chances for a healthy baby, pregnant women need high quality, comprehensive prenatal care. IDPH contracts with local maternal health centers, operating under the direction of a local physician, to ensure appropriate care. In addition, statewide maternal health centers assist each woman to maximize the learning and growth potential her pregnancy has to offer.

Services provided by IDPH local maternal health centers follow standards set by the American College of Obstetrics and Gynecology for ambulatory obstetrics care. Each component of maternal health is an integral part of care that is most likely to result in a healthy pregnancy outcome.

Components of this care include: prenatal/postnatal medical and laboratory services, risk assessment and planning, case management, nutrition assessment, psychosocial assessment and planning, dental assessment and referral, client education and appropriate nursing interventions.

In urban areas, maternal clinic sites generally employ their own administrative, clerical and nursing staff. Physician services are provided in a variety of ways. Nutritional services are provided by the Women, Infants and Children (WIC) nutrition program. Clinics vary whether their dental and social work staff are employees of that agency or are on a contract basis.

In rural areas, contracts are entered into with private physicians who provide medical care for pregnant clients. The local maternal agency provides administrative services for the program and ensures the provision of other

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This information on public health matters is furnished and sponsored by the Iowa Department of Public Health.

health care components such as nursing, nutrition education, social assessment and dental services.

To help pregnant women establish healthy habits, maternal centers also offer specific educational services according to client need.

Prenatal classes develop the participant's self-confidence and help her cope with the stresses of pregnancy and future parenthood. Classes cover physical and emotional changes that occur during pregnancy; physiological changes that occur for the mother and the fetus; fetal development; breathing and relaxation techniques to use during pregnancy and delivery; prenatal exercise and preparation for labor delivery; postpartum care; future contraception; and infant care including feeding, physical care needs, safety and ongoing child care.

Nutrition is also an essential aspect of complete maternal care. Nutrition components emphasize the relationship between proper nutrition and good health, promoting optimum nutrition throughout life. Education is assessed on an individual basis, focusing on increasing the quality of the diet; ensuring adequate weight gain patterns; evaluating the use of caffeine; alcohol and drugs; and assessing the need for vitamin or mineral supplements.

## Cost Effective Care

IDPH maternal health centers endeavor to supply a cost effective, medically appropriate level of care that provides quality and flexibility based on individual needs. Services are available to every Iowa woman who is pregnant or thinks she may be pregnant and free to those whose income falls below 185% of the federal poverty guidelines. For others, charges are based on income and ability to pay.

Outreach for MCH centers has become crucial to the future health of Iowa's population because the centers serve a high percentage of at-risk women. In 1989, an alarming 8% of MCH participants had not entered prenatal care until their third trimester. This compares to 2% in the average statewide population entering care in their last months. In addition, 33.8% of MCH clients had not sought prenatal care until their second trimester. This compares to 12% in the average statewide population of women entering prenatal care in their second trimester.

(Continued next page)

# YOCON<sup>®</sup>

## YOHIMBINE HCl

**Description:** Yohimbine is a 3a-15a-20B-17a-hydroxy Yohimbine-16a-carboxylic acid methyl ester. The alkaloid is found in Rubiaceae and related trees. Also in *Rauwolfia Serpentina* (L) Benth. Yohimbine is an indolalkylamine alkaloid with chemical similarity to reserpine. It is a crystalline powder, odorless. Each compressed tablet contains (1/12 gr.) 5.4 mg of Yohimbine Hydrochloride.

**Action:** Yohimbine blocks presynaptic alpha-2 adrenergic receptors. Its action on peripheral blood vessels resembles that of reserpine, though it is weaker and of short duration. Yohimbine's peripheral autonomic nervous system effect is to increase parasympathetic (cholinergic) and decrease sympathetic (adrenergic) activity. It is to be noted that in male sexual performance, erection is linked to cholinergic activity and to alpha-2 adrenergic blockade which may theoretically result in increased penile inflow, decreased penile outflow or both.

Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage although they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalamic centers and release of posterior pituitary hormone.

Reportedly, Yohimbine exerts no significant influence on cardiac stimulation and other effects mediated by B-adrenergic receptors, its effect on blood pressure, if any, would be to lower it; however no adequate studies are at hand to quantitate this effect in terms of Yohimbine dosage.

**Indications:** Yocon<sup>®</sup> is indicated as a sympatholytic and mydriatic. It may have activity as an aphrodisiac.

**Contraindications:** Renal diseases, and patient's sensitive to the drug. In view of the limited and inadequate information at hand, no precise tabulation can be offered of additional contraindications.

**Warning:** Generally, this drug is not proposed for use in females and certainly must not be used during pregnancy. Neither is this drug proposed for use in pediatric, geriatric or cardio-renal patients with gastric or duodenal ulcer history. Nor should it be used in conjunction with mood-modifying drugs such as antidepressants, or in psychiatric patients in general.

**Adverse Reactions:** Yohimbine readily penetrates the (CNS) and produces a complex pattern of responses in lower doses than required to produce peripheral a-adrenergic blockade. These include, anti-diuresis, a general picture of central excitation including elevation of blood pressure and heart rate, increased motor activity, irritability and tremor. Sweating, nausea and vomiting are common after parenteral administration of the drug.<sup>1,2</sup> Also dizziness, headache, skin flushing reported when used orally.<sup>1,3</sup>

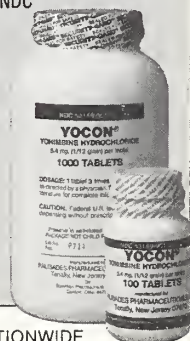
**Dosage and Administration:** Experimental dosage reported in treatment of erectile impotence.<sup>1,3,4</sup> 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.<sup>3</sup>

**How Supplied:** Oral tablets of Yocon<sup>®</sup> 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

### References:

1. A. Morales et al., New England Journal of Medicine: 1221, November 12, 1981.
2. Goodman, Gilman — The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

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March 1990 / 149



With ongoing outreach efforts, IDPH hopes to steadily ensure prenatal care for low income women and increase the percentage of women entering prenatal care in the first trimester. Iowa residents may call either of 2 toll-free information lines at IDPH to learn more about prenatal health care and their nearest maternal health center. Physicians may call 1-800/383-3826 and potential clients may call 1-800/369-BABY (2229).

## 1989 Infectious Disease Report

**T**HERE ARE 48 INFECTIOUS DISEASES required to be reported to the Iowa Department of Public Health and to local public health offices. The following is an end of the year report from L. A. Wintermeyer, M.D., state epidemiologist. Data on other disease may be obtained by calling or writing the IDPH.

AIDS incidence nationwide is now over 115,000. Iowa cumulative cases at the end of 1989 totaled 167. Forty-nine were reported in 1989 compared to 47 in 1988. The number of positive Western Blot tests at alternate testing sites dropped to 186 in 1989 from 207 in 1988. This data provides hopeful evidence that HIV infection and AIDS in Iowa is leveling off.

Lyme Disease stands at 27 cases reported in 1989 compared to 15 for 1988. While this data shows Lyme Disease is occurring in Iowa, the actual incidence is difficult to ascertain as signs and symptoms overlap other diseases and laboratory confirmation is frequently not dependable.

Twenty-three measles cases occurred in 1989 compared to 2 in 1988. There were 2 foci of the disease — one in northeast Iowa and one in southeast Iowa. Both were traced to people with religious immunization exemptions and imported from an adjacent state. The disease did not spread to the general population. This speaks well for Iowa's immunization program.

Pertussis cases total 16 for 1989 compared to 35 for 1988. One death is an unimmunized infant was attributed to whooping cough.

Fifty-four cases of mumps were reported in 1989 compared to 43 in 1988.

Rabid animals totaled 203 in 1989 compared to 175 in 1988. With this many rabid animals, Iowa has been fortunate to not have a human case. Most cases occur in skunks with sporadic spread to dogs and cats which are mostly unimmunized in a rural environment.

Chlamydia cases leveled off with 5,180 in 1989 compared to 5,255 in 1988. Gonorrhea rose to 2,757 from 2,279 in 1988. Syphilis increased to 36 from 28 in 1988.

Influenza A viruses (both H<sub>3</sub>N<sub>2</sub> and N<sub>1</sub>N<sub>1</sub>) have been isolated from various areas of the state. With the ease of transmission of the influenza virus it is reasonable to assume most of the flu-like illness in the state is due to this agent. There has also been a large number of respiratory syncytial virus laboratory confirmations. In addition, adenovirus, mycoplasma and cytomegalovirus have been laboratory confirmed to be responsible for a number of flu-like illnesses.

A major problem in tracking infectious diseases is getting clinicians to submit proper specimens to the laboratory. Many hospital laboratories have capabilities to perform rather sophisticated tests or can facilitate obtaining and sending the specimen to a reference laboratory. If assistance is needed, please call the Iowa Department of Public Health at 1/800/362-2736 or the University Hygienic Laboratory at 1/319/335-4500.

### Help Wanted

We are seeking spouses of Iowa physicians to join a vital, progressive, accomplished group — the Iowa Medical Society Auxiliary.

**QUALIFICATIONS AND SKILLS:** Enthusiasm and involvement

**BENEFITS:** Too numerous to list

Send your dues (\$30 payable to IMS Auxiliary) TODAY to your county auxiliary treasurer or district councilor. In return, you will become a person who is well-informed about Iowa's medical issues.

For further information on the IMS Auxiliary, contact Sandy Nichols, 515/223-1401 or toll free 1/800-747-3070.

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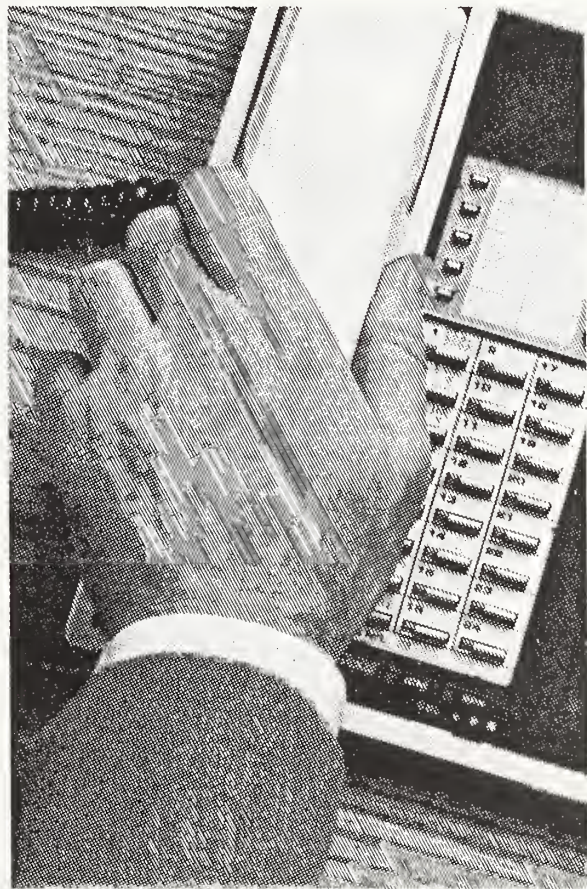
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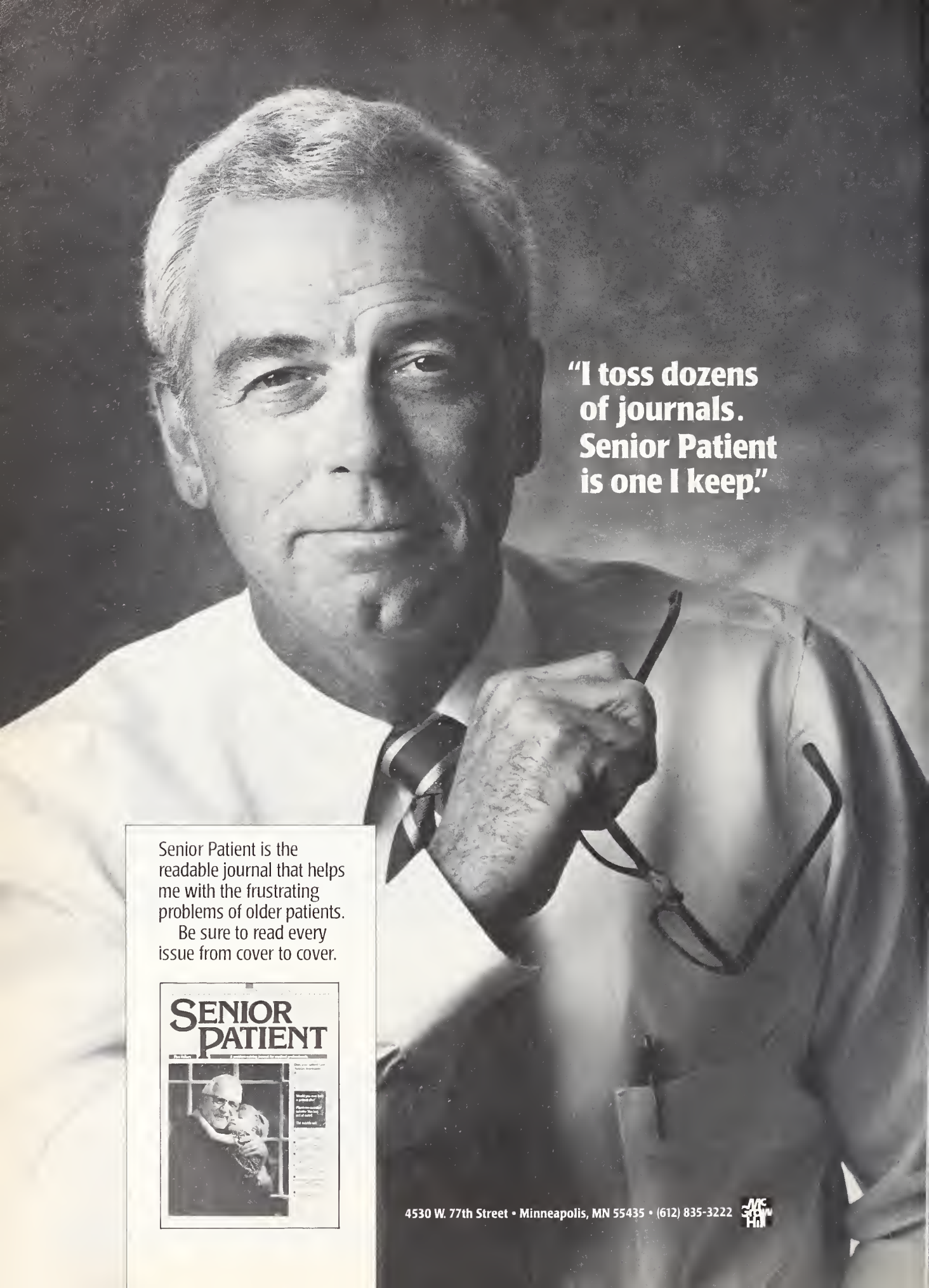
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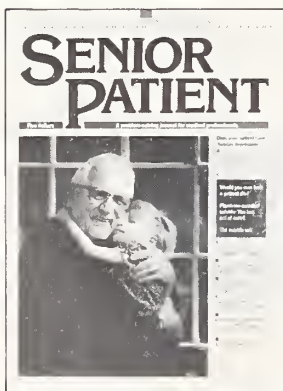




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# About Iowa Physicians

**Dr. Hormoz Rassekh**, Council Bluffs, was recently appointed to the board of trustees of the Educational Commission for Foreign Medical Graduates to represent the Federation of State Medical Boards. The term runs 4 years.

**Dr. Lila Furman**, Ames, has been elected Regional Governor for the American Medical Women's Association. Dr. Furman will represent Region VIII which includes Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota and South Dakota. **Dr. James F. Clark**, Clinton, has been named president of the Iowa Association of Pathologists. Dr. Clark, who previously was secretary-treasurer for the organization, will serve a 2-year term. **Dr. Curtis Mock**, Onawa, recently received an award from the U.S. Public Health Service for outstanding service to the community. Dr. Mock received the award in Kansas City at a recognition dinner. The following physicians were elected to the Iowa Academy of Family Physicians at the Academy's 41st annual meeting in Des Moines: **Dr. James Kimball**, president; **Dr. Donald J. Soll**, president-elect; **Dr. Melvin G. Parks**, vice president; **Dr. Harold Ecklund**, secretary-treasurer; **Dr. Clint MacKinney**, board member and **Dr. Tom Evans**, board member. **Dr. Larry Magruder** has begun practice in Port Arthur, Texas after 2 years at the Orange City Medical Clinic. **Dr. Donald Rodawig, Jr.**, Spirit Lake, was presented with the Citizen of the Year award by the Spirit Lake Kiwanis Club for his continuing contributions to the community and the practice of medicine. **Dr. Gordon Rahn** has retired after nearly 42 years as a family practice physician in Mount Vernon. Dr. Rahn received the M.D. degree from the U. of I. College of Medicine. **Dr. Jim Clemens** has joined the Orange City Medical Clinic. Dr. Clemens received the M.D. degree from the U. of I. College of Medicine and completed a residency at Broadlawns Hospital, Des Moines. He previously practiced in Sibley. The following physicians were installed as officers of the Polk County Medical Society: **Randall Maharry**, president; **Julius Conner**, president-

elect; **Thomas Brown**, secretary-treasurer; **Mark Purtle**, trustee and **Laurence Baker**, councilor. **Dr. James Clark**, Clinton, has been named the president of the Iowa Association of Pathologists. Dr. Clark, who previously served as secretary-treasurer for the organization, will hold the post for 2 years. **Dr. Tim Nagle** has begun practice at the Calmar Community Clinic. Dr. Nagel had been in family practice in Clarion for the past 2 years. **Dr. Curtis Wuest** has joined the staff at U. of I. Student Health Service. Dr. Wuest previously practiced in Marshalltown. **Dr. Douglas McNeill** has left the Keokuk County Medical Clinic in Sigourney to begin practice in Michigan. **Dr. Charles Helms**, Iowa City, has been invited to serve on the AIDS Advisory Committee of the Health Resources and Services Administration. Dr. Helms will serve a 2-year term.

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## Deaths

**Dr. Franklin H. Top**, 86, Cedar Rapids, died November 29 at Iowa City Care Center. Dr. Top received the M.D. degree from the University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania and was head of the department of Preventative Medicine at the U. of I. College of Medicine from 1952 until his retirement in 1971.

**Dr. John W. Castell**, 81, formerly of Fairfield, died December 9 in Berryville, Arkansas. Dr. Castell received the M.D. degree from the U. of I. College of Medicine and practiced in Fairfield for over 30 years. He was a life member of the Iowa Medical Society.

**Dr. Arthur Woodward**, 66, Waterloo, died January 2. Dr. Woodward received the M.D. degree from the University of Chicago School of Medicine, Chicago, Illinois and completed a urology residency at the University of Kansas Medical Center, Kansas City, Missouri. He practiced in Waterloo for more than 34 years.



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# Classified Advertising

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IMPAC .....	147	Saint Joseph Hospital .....	112
Iowa Methodist Medical Center .....	124	Senior Patient .....	152
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Iowa's Statewide Perinatal Care Program began in 1973, cosponsored by the U. of I. and the Iowa Department of Public Health. Dr. Herman Hein, a U. of I. pediatrics professor, directs the program.

"Our Level III tertiary centers are University Hospitals and Methodist Medical Center, but it's pretty obvious that all pregnant women can't come to Iowa City or Des Moines," explains Dr. Hein. "Our goal is to make quality perinatal services available to all Iowans through a stratified and regionalized system of care."

Through the efforts of participating physicians across Iowa, basic perinatal care in all hospitals which deliver and care for babies has improved. Every 6 months, a perinatal team (pediatrician-neonatologist, obstetrician and nurse clinicians) visits each Level II hospital.

The U. of I. Departments of Obstetrics and Pediatrics maintain a 24-hour consultation service for all Iowa physicians. The "Iowa Perinatal Letter" is published for family physicians in smaller hospitals.

"Our goal is to insure a high quality of perinatal care in the regional centers and local hospitals by developing educational and care relationships with the tertiary centers in Iowa City and Des Moines," comments Dr. Hein.

Perinatal outcome has steadily improved in Iowa during the time the program has been in operation.

"In 1986, Iowa had the second lowest infant mortality rate in the nation," Dr. Hein relates, "and we have consistently been in the top 5."

These statistics indicate that in most cases, obstetrical patients who need to be referred are being referred; those who are not referred generally receive the appropriate level of high quality care in their local hospitals.

Because the program is so beneficial to Iowa's expectant mothers, it is distressing to Dr. Hein that the program's success is being undermined. "Some third party payers reward physicians for not referring patients to the appropriate level of care, and this fact does not bode well for our program or expectant mothers," comments Dr. Hein.

Another threat is the malpractice liability crisis which has hit obstetricians particularly hard. "Doctors are reluctant to take the risk of seeing Medicaid patients who may not follow the doctor's advice and experience bad results. Bad results lead to lawsuits. If we don't do something to remedy this situation, we're going to see Iowa's infant mortality rates go right back up," he adds. "The liability crisis also means poor distribution of physicians as more rural physicians quit delivering babies."

Dr. Hein expresses gratitude to the physicians and nurses who make the Statewide Perinatal Care Program a success. "The dedication of the physicians and nurses in the Level II centers and the willingness of physicians and nurses in Level I hospitals to assess risk status and refer patients when indicated has allowed Iowa to enjoy a quality system of regionalized perinatal care."

---

March 1990

Iowa Medicine

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# Iowa Medicine

April 1990

Journal of the Iowa Medical Society

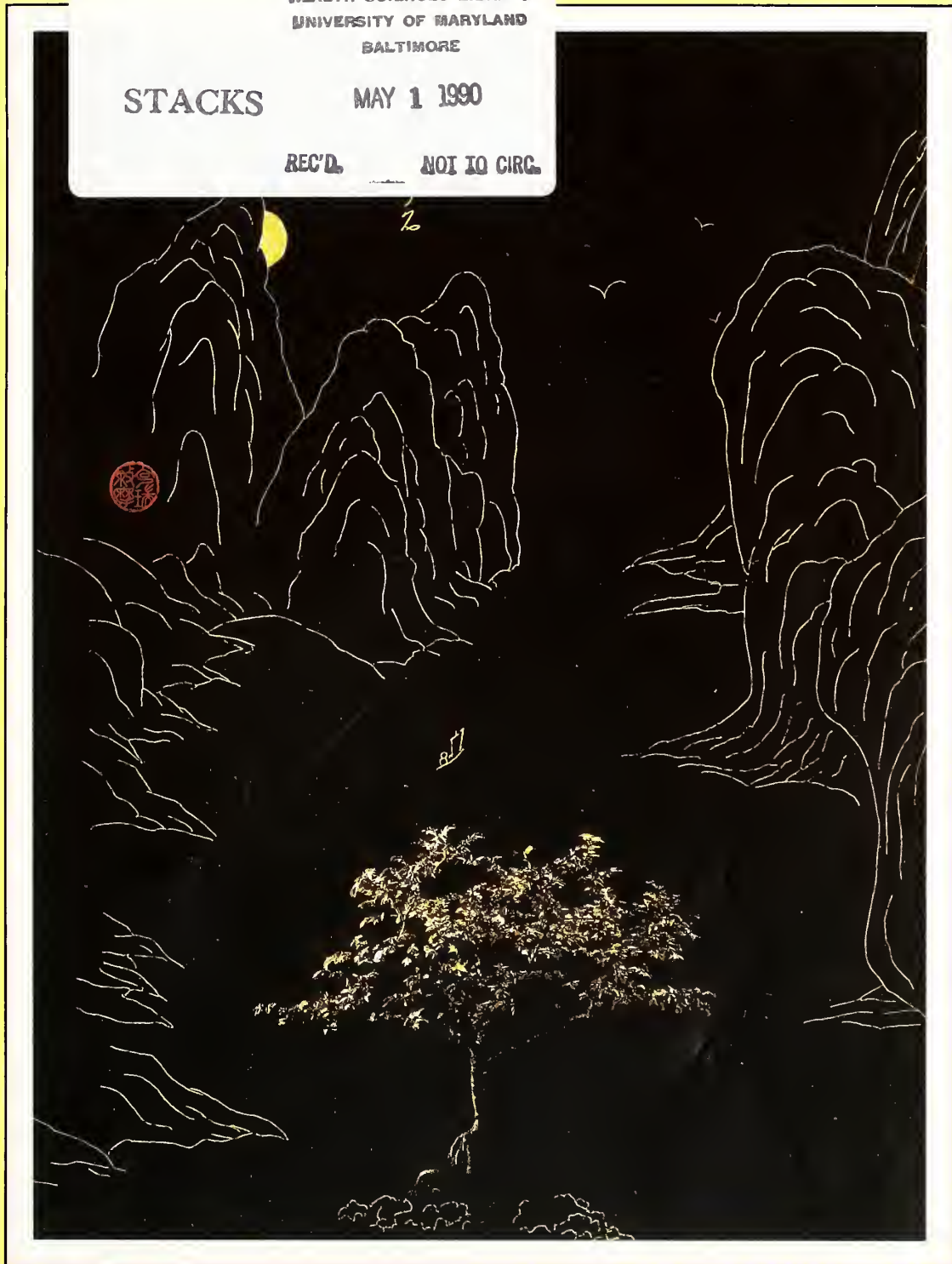
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# IowaMedicine

Volume 80 Number 4

Journal of the Iowa Medical Society

April 1990

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# In This Issue

## Departments

- 71 President's Privilege
- 73 More About the Cover
- 101 The Editor Comments
- 103 Medical Student Forum
- 107 Letter to the Editor
- 109 IFMC Case Notes
- 110 Practice Management
- 113 Iowa Department of Public Health
- 116 About Iowa Physicians
- 126 In the Public Interest

## Special Articles

- 174 Medical Research Wins Recognition, Support**  
*The U. of I. College of Medicine has earned a high ranking in the area of research funding.*  
**John W. Eckstein, M.D.**
- 176 A Continuing Art and Growing Science**  
*There is only one way to attract the best students to a medical school.*  
**Mark Albanese, Ph.D., Charles Helms, M.D., Ph.D.**
- 179 Ah! Aha! Haha!**  
*Creative expression can often be found in unlikely places.*  
**Carol A. Aschenbrener, M.D.**
- 182 Rare Medical Tomes Are His Passion**  
*The UI College of Medicine library is "world class," thanks to Dr. John Martin.*
- 185 Twenty Years of MECO in Iowa**  
*How do you keep Iowa-trained physicians in Iowa? This program plays an important role.*  
**Richard M. Caplan, M.D., Charles E. Driscoll, M.D.**
- 189 Medicine and the Creative Connection**  
*U. of I. physicians make time for artistic pursuits and these pictures are worth thousands of words.*  
**Anne Duggan**

## Scientific Article

- 195 Safety of Iowa's Blood Supply**  
*AIDS has focused public attention on the dangers of transfusion.*  
**Ronald Strauss, M.D.**

## About the Cover

This month's cover is an excellent example of the theme 'art in medicine.' The combination photograph and drawing, based on the poem "Song of Peach Blossom River," was created by Dr. Jay Krachmer, a U. of I. professor of ophthalmology. For more information about Dr. Krachmer and his art, see page 173.



# CUT HERE FOR SMOOTH SAILING INTO THE 1990s

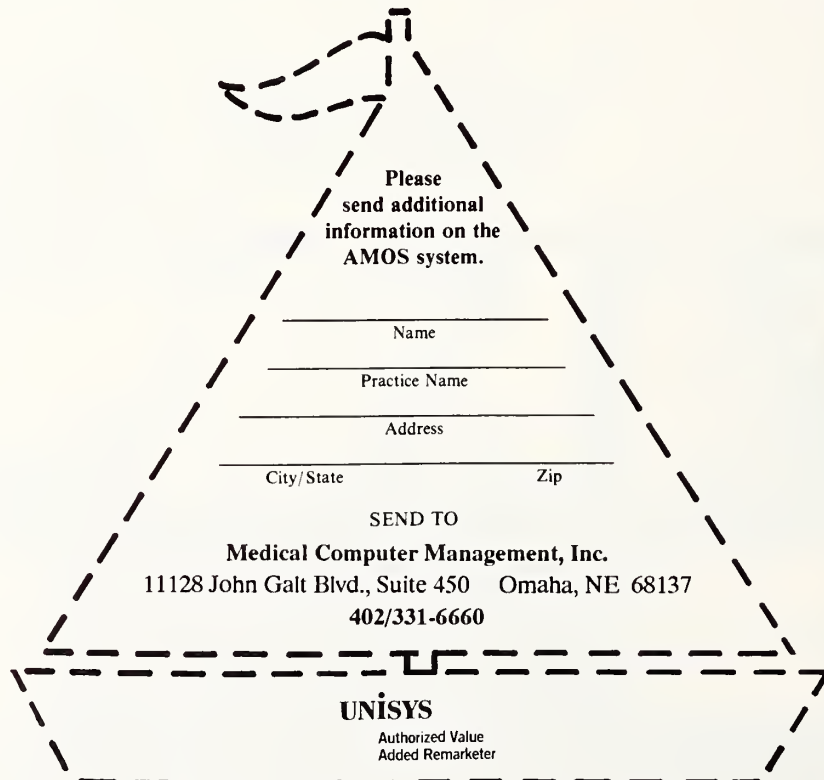
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## Donald F. Rodawig, M.D.

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President's Privilege



## A Touch of Art

**I**NCREASING NUMBERS of my patients are on Medicare and my nursing home census is growing. Often I am called upon to care for new patients who are admitted to nursing homes from other areas to be closer to their families. These patients have multi-system disease and communicate poorly. The family members often feel guilt, stress, anger and financial insecurity because they have put "Mom" in the nursing home. I have found the very same methods that built my practice useful in caring for my aging patients. This is "The Art of Medicine."

In coping with families of newly admitted nursing home patients, just an acknowledgement of how difficult it must be for them to have Mom or Dad in such distress, is important. Listening to their concerns is helpful. To code or not to code is much easier to ascertain from the start. Make sure they understand your treatment plans. By doing these things early, you can go a long way in preventing future problems. This is communication!

Listen to the patient even though it may be difficult because of impaired mental capacity. Assure them you are concerned about them; that you are there to help them. Little things you do such as ordering a reasonable diet, bowel and bladder help, elimination of unnecessary medicines and pain relief are of immense value to them. It is essential these measures are carried out while preserving their dignity. Just being there, showing your concern is more important than many of the medical decisions you might make.

By doing these things you are practicing "The Art of Medicine."

*Donald F Rodawig MD*

Donald F. Rodawig, M.D.  
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For Primary Care Physicians

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Registration and Lunch: 11:15AM-12:00PM

Program: 12:00-5:00PM

This program will be held in the **Marron Education Center**,  
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For registration information, call **(319) 398-6265** or **1-800-642-6329** Fee: **\$35.00**

### **Accreditation**

As an organization accredited by the Iowa Medical Society for Continuing Medical Education, the Cedar Rapids Medical Education Program certifies that this CME offering meets the criteria for 4.5 credit hours in Category 1 provided it is used and completed as designated.

0.5 Nursing CEUs will be awarded for the entire session.

---

## Jay Krachmer, M.D.

---

More About the Cover

# An Artistic Physician



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*Dr. Jay Krachmer, professor of ophthalmology in the U. of I. College of Medicine, also directs the Iowa Lions Cornea Center. Dr. Krachmer's artwork appears on this month's cover.*

---

### In what way or form do you find art in medicine?

People think of medicine as strictly scientific — all factual, measurable and time-related. Physicians know that not everything is measurable and predictable. They know, or soon come to see the importance of creativity when they are confronted with a patient who is not diagnosable or treatable. What you know is not sufficient, so you create a way to go beyond. That's an art in a sense. You learn to switch into a creative mode and seek new ways of looking at things, much as an artist does.

All day I see patients or do surgery and much of that is non-creative. Yet I have been fortunate enough to use my imagination many times to make new diagnoses and find other methods of treatment. They didn't come from merely repeating what others had done, but from a new way of looking at things. I try to use whatever creative abilities I have in art also.

### You use photography in art. Why?

I don't know how these things happen, but I don't think it is related to optics and ophthalmology. I got my first camera as a youth in exchange for a pet we no longer could keep. Photography has always interested me as a mode of artistic expression because I could use an instrument to make an

image rather than draw it. I've learned that nearly all of us can draw to some degree, and there are ways to enhance that ability. Now I enjoy combining photography and hand art.

I started, as most of us do, in what I would call straight picture taking. I'd see a beautiful scene and I'd take a picture of it. I began with large-format photography, 4 × 5 and 8 × 10-inch film. Then I began looking for different ways to see a scene, maybe a different angle, different lighting or a special treatment.

### How did you produce the cover photograph?

The cover is an example of my current work, in which the image is something you could never see. The bonzai tree was photographed and the film painted. It was combined with a drawing of mountains, the moon and birds, a photograph of calligraphy and my seal.

I am interested in Oriental art and Chinese literature, particularly poetry. I read poetry that gives me an image I try to produce in a photo. In the case of the cover, it depicts a very old legend of a fisherman who found people from a previous dynasty. He talked with them about the past and the future. Then he left, but was never able to find the way back to them, which is what the sentence on the print says. We see the fisherman looking for them in between mountains and the bonzai tree.

I use 8 × 10 film and enlarging equipment. I draw on the film and use many pieces of film held in register. I am able to express myself both in drawing and photography.

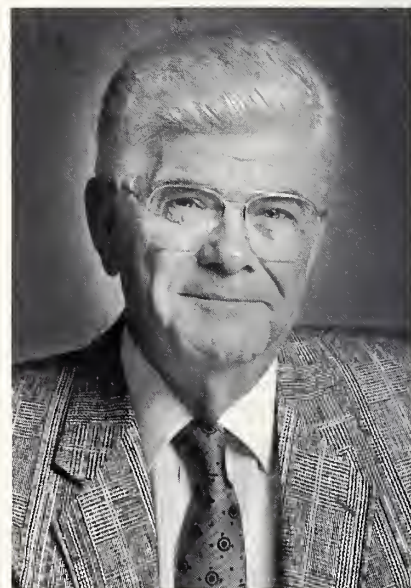


# Medical Research Wins Recognition, Support

JOHN W. ECKSTEIN, M.D.

Iowa City, Iowa

John W.  
Eckstein, M.D.



---

*Dr. Eckstein, Dean of the University of Iowa College of Medicine, discusses the versatile medical faculty.*

---

**T**EACHING THE ART AND SCIENCE of medicine at Iowa is the subject of an article by Drs. Charles Helms and Mark Albanese which appears elsewhere in this issue. Many of the faculty names cited will be familiar to Iowa practitioners, whether or not the latter are alumni of the College of Medicine, for these are physician-teachers-researchers whose work and reputations extend far beyond campus boundaries.

In recent years we have come to realize our official name, "College of Medicine," may be responsible for a common misperception among the general public that we teach only medical students. In fact we do much more.

## ***A Campus-Wide Teaching Mission***

While our 700 medical students get the greatest commitment of faculty teaching effort, that same faculty also:

- Provides basic science instruction to dental, nursing and pharmacy students
- Teaches about 600 interns, residents and fellows in UI Hospitals and Clinics

- Teaches about 300 students working toward master's and Ph.D. degrees
- Instructs about 200 students in the Associated Medical Sciences program — physician assistants, laboratory technology, nuclear medicine technology and physical therapy
- Teaches large numbers of liberal arts undergraduate majors in biochemistry and microbiology
- Works with community hospitals in Iowa cities to train about 160 family practice residents
- Offers special programs in medical ethics and medical history that are open to students in any of the 10 UI colleges and

- Provides current information in a wide-ranging continuing education program that reaches several thousand physicians and other health professionals each year.

### ***Teaching By Caring for Patients***

Our physician faculty members are, of course, responsible for the medical care of patients in the University Hospitals and Clinics and the Department of Veterans Affairs. Along with the residents and fellows they supervise, these faculty physicians provide the medical components of the tertiary care programs of the UIHC and in the process, teach the art and science of medicine to future generations of doctors.

In this past decade clinical departments have undergone a substantial shift from research in hospital settings to "laboratory-bench" research that focuses on fundamental problems in disease and disease prevention. This impetus developed as technology opened new windows on the study of many diseases and as National Institutes of Health funding gave priority to studies at the intracellular and molecular levels.

There is only one word to describe how the Iowa medical faculty has responded to these new challenges: Magnificently!

### ***Explosive Growth in Research***

In 1972, the year 5 basic science departments moved from the old Medical Laboratories building into the new Bowen Science Building, medical faculty members were awarded \$17 million in external research support. Ten years later their research funding had doubled to \$34 million. Last year outside support had more than doubled again, rising to \$72 million. Much of this success is due to the explosive development of basic laboratory-bench research in the clinical departments.

In 1989, the U. of I. College of Medicine ranked 22nd among the 127 medical schools in the amount of research support received from the National Institutes of Health. Twenty-one colleges above us included many of the older, well-known eastern private medical schools. When these private schools are removed from the list, Iowa ranked 9th among the public or state medical schools.

### ***Iowa Ranks with the Best in the Country***

If the 22 leading medical schools are ranked according to the amount of funding per full-time-equivalent faculty member, Iowa ranks 12th. If private schools are excluded, Iowa ranks 7th. Public universities ahead of Iowa include 3 University of California medical schools in San Francisco, Los Angeles and San Diego, the University of Washington, and Michigan and Minnesota in the Big Ten.

Research support is not thrust upon an investigator on a silver platter. As the brokerage firm's famous TV spokesman would put it, the Iowa faculty achieves its support the old-fashion way: by working for it. Research grants are awarded competitively and Iowa scientists' proposals obviously hold more promise for success than do those from many other medical schools.

Further proof of this may be found in appointment of 3 of our faculty scientists as Howard Hughes Medical Institute Investigators this past summer and fall. The HHMI is underwriting the research teams of biochemist John Donelson, internist and physiologist Michael Welsh, and physiologist Kevin Campbell — a total of 50 individuals. For the next 7 years, HHMI is paying their salaries and operating costs and leasing the laboratory space in which they are carrying out their highly advanced research in African sleeping sickness, cystic fibrosis and muscular dystrophy, respectively.

### ***Request for New Research Space***

Well equipped laboratory space has become an indispensable magnet for attracting and keeping such top-notch researchers. Just about the time this issue of *IOWA MEDICINE* reaches IMS members, the 1990 legislative session will be considering a request by the State Board of Regents for initial planning funds for a major new laboratory building, badly needed to keep Iowa competitive for the increasingly limited supply of "outside" research funds. Another request will be considered for operating money to help underwrite the University-wide teaching programs for which the College of Medicine is held responsible.



# A Continuing Art and Growing Science

MARK ALBANESE, Ph.D.

CHARLES HELMS, M.D., Ph.D.

Iowa City, Iowa

---

*The authors discuss undergraduate medical education from past to present at the University of Iowa College of Medicine.*

---

**T**HE MODERN AMERICAN MEDICAL SCHOOL teaches students, conducts research and provides patient care. Throughout this century the U. of I. College of Medicine has worked to achieve excellence in these areas.

During a period of time when the number of applicants to medical schools has decreased dramatically nationwide and when the cost of medical education has increased significantly, it is important medical schools maintain excellence and enthusiasm in teaching to attract the best students and prepare the best doctors. Over the past 20 years the College of Medicine has paid increasing attention to, and placed emphasis upon, teaching, and the medical curriculum.

About 20 years ago a major curriculum revision was instituted. The first 3 semesters were dedicated to basic science courses, fol-

lowed by one semester of a single course, Introduction to Clinical Medicine, which gave students the skills to function effectively when they began clinical education. After completing this course, students spent the third year acquiring clinical skills by rotating through 11 medical specialties. The fourth year was selective, with students required to take 5 one-month rotations on campus, then for the remainder of the year be free to select educational experiences anywhere in the country. Their choices were reviewed by a faculty advisor and the associate dean for student affairs to ensure their selections represented an adequate balance to meet their educational needs.

## *Maintaining Vitality*

The general structure of that revised curriculum still exists today, but changes have been incorporated to maintain its vitality. The Medical Education Committee reviews the curriculum regularly and makes recommendations for improvement to the dean and the faculty. This oversight process has led to the introduction of courses in human dimensions of medicine, biomedical ethics and neuroscience in the basic science years, a required preceptorship in family practice in the third year and a required clinical pharmacology course in the fourth year.

The Office of Consultation and Research in Medical Education (OCRME—originally the Learning Resources Unit) was established to assist faculty in identifying effective educational methods. The OCRME consists of consultants with expertise in a wide range

---

Dr. Albanese directs the Office of Consultation and Research in Medical Education. Dr. Helms is associate dean for student affairs and curriculum.

of educational areas including design of instruction, testing, measurement, statistics, evaluation, computer-assisted instruction and clinical, patient and public health education. Staff in this office assist the Medical Education Committee in curriculum reviews, help individual faculty become better teachers, conduct research on the educational process of the college, offer workshops on a variety of educational topics, assist in developing and evaluating new educational materials and programs and prepare grants to support innovations in medical education.

The Educational Development Fund is another effort begun by the dean to support the college's educational mission by encouraging innovation in the medical curriculum. Through this program, faculty can apply for grants up to \$5,000. Project proposals are peer reviewed by faculty on the OCRME Advisory Committee and must incorporate plans to document the effectiveness of innovations. In 1989 the Lewis D. Holloway Award was created by the Dean to recognize excellence in such efforts. Projects sponsored by this fund have led to many publications in peer reviewed journals and several grant awards from external agencies.

### ***Iowa Innovations***

Collegiate support of medical education has had important effects locally and on medical education across the entire country. A description of some of the educational innovations developed at Iowa is instructive:

Dr. Robert Kretzschmar, obstetrics and gynecology, led an effort to use "teaching associate simulated patients" to teach the female breast and pelvic exam. These women typically are not formally educated in a health profession but must have good communication skills. The women work in pairs with groups of 4-6 medical students, one teaching associate serving in the physician role, the other as the patient. This program became the model for a male genital-rectal program subsequently begun by Drs. Verdain Barnes and Walter Gerber. The use of simulated patients has proliferated nationally since Dr. Kretzschmar's pioneering work at Iowa and today most medical schools make at least limited use of simulated patients.

Dr. Thomas Kent, pathology, pioneered in developing computer applications in med-

ical education at Iowa. Dr. Kent and his colleagues developed a set of computer-assisted patient simulations to introduce students to skills. Students using these programs are given history and physical examination results for a hypothetical patient. The student orders tests and clinical procedures sequentially until a diagnosis is established. The program culminates when the student makes a diagnosis, selects a treatment plan and receives feedback about the correctness of the diagnosis and cost to the patient. Originally designed to run on large main-frame computers, these programs have been modified for use on today's microcomputers.

Dr. Kent also founded the Group for Research in Pathology Education (GRPE). For 18 years the headquarters of this group was at the University of Iowa. The group manages a test item bank used by medical schools across the country. Dr. Kent and his colleagues continue to work on integrating computer applications in the curriculum, developing a program that can administer a "tailored" examination. This program selects test items that will challenge a student, based on that student's performance on earlier items. When the student gets earlier items correct, he/she will be given more difficult items. If the student answers earlier items incorrectly, he/she will be given easier items. The basic goal is to take up less time during testing, while assessing student knowledge with the same degree of accuracy as with a longer test. Feasibility studies suggest testing time can be reduced by one-third to one-half by using tailored testing, with students graded on their overall ability.

Dr. James Blackman, pediatrics, led a multi-disciplinary team in developing and evaluating an interactive video program to teach diagnosis of developmental disabilities. Third-year medical students who completed the program were shown to have substantially improved skills in the diagnosis of developmental disabilities in children.

Dr. Charles Driscoll, family practice, led the effort that made the family practice clerkship a required part of medical curriculum. Each student spends 2 weeks living and working with a volunteer family physician in locations throughout the state, thereby obtaining a first-hand view of com-

*(Continued next page)*



munity-based medical practice. Dr. George Xakellis, clerkship director, ensures students are exposed to a standard set of patient care experiences by providing workshop training for participating physicians and a standard set of readings for students. He is also upgrading the testing program and refining methods by which family physicians evaluate medical students.

### ***Multi-Disciplinary Effort***

Dr. Rex Montgomery, associate dean for academic affairs and acting vice president for research, is heading a multi-disciplinary effort to develop 5 programs using IBM InfoWindow videodisc technology. As part of this effort, Dr. Thomas Farrell, ophthalmology, is leading a team in developing a program on "Basic Ophthalmology." Dr. Robert Folberg, ophthalmology, is developing a program on "Ophthalmic Pathology." Dr. James Hanson, pediatrics, directs the program entitled "Medical Genetics." Drs. Roger Kathol and Anna Cilursu, psychiatry and internal medicine, are developing a program to teach medical students and residents skills in diagnosis for patients with combined medical and psychiatric problems.

Drs. David Murray and Robert Forbes, anesthesia, are involved in a project aimed at improving the feedback given to anesthesia residents about their performance. Using evaluation forms which can be processed by a desktop optical scanner, a summary of daily resident evaluations can be obtained on demand. Summaries of evaluations are provided regularly. Thus, residents can be counseled in a timely manner as to their performance. Dr. Robert From, anesthesia, is attempting to extend the system to include evaluations of third-year medical students.

Dr. Mark Wolraich, pediatrics, has led a multi-disciplinary effort to develop and evaluate a program to teach medical students and residents effective methods for handling the delicate and emotionally charged communications to parents concerning catastrophic illness in their children. For his work he was presented the first Lewis D. Holloway Award for Excellence in Health Science Education Research in 1989.

Dr. Douglas Laube, obstetrics and gynecology, is leading an effort to document common clinical problems encountered by

third-year students in the obstetrics and gynecology clerkship and develop an oral examination program which assesses student understanding of these problems.

Dr. William Erkonen, radiology, is working to integrate diagnostic imaging instruction in the medical curriculum. He is collaborating with Dr. Nicholas Pantazis, anatomy, on a program teaching basic principles involved in interpreting diagnostic images as part of the anatomy course for first-year medical students. The program involves showing CT scans, plain film X-rays, MR and ultrasonographic images of normal anatomical structures. Dr. Erkonen is also working with Drs. Kent and Richard Lynch, pathology, in correlating diagnostic imaging with macro and microscopic pathology.

Drs. Donald Brown and Carl White, internal medicine, developed the Lewis E. January Learning Resources Unit in Internal Medicine, which houses one of the few "Harvey" simulations in the country. This simulation consists of a life-like manikin which produces heart sounds and tactile sensations. The manikin is used in undergraduate medical education, resident training and continuing medical education.

### ***Superior Teaching Recognized***

Many excellent teachers complement and participate in innovative education programs in the U. of I. College of Medicine. Among these are Drs. Douglas Laube and Donald Brown, who have been selected or nominated by medical students as "Teacher of the Year" for at least the past 13 years. Dr. Laube was awarded the University-wide Burlington Northern Teaching Award in 1989. Both Laube and Brown as well as Dr. Charles Lynch, preventive medicine and environmental health, received faculty achievement awards in 1989. Dr. Paul Heidger, anatomy, was given the 1989 M. C. Huit award honoring his cross-disciplinary teaching and scholarly accomplishments. While these individuals have received formal recognition, others are nominated for teaching awards, attend workshops to improve their teaching and otherwise devote long hours to make their teaching the best it can be.

The art and science of teaching thrive at the U. of I. College of Medicine and it is the college's goal to continue the tradition.

# Ah! Aha! Haha!

CAROL A. ASCHENBRENER, M.D.  
Iowa City, Iowa

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***Is research an art? By several definitions it clearly is — but the scientist must follow rules, the laws of nature.***

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**I**N HIS ESSAY "The Three Domains of Creativity," Arthur Koestler draws parallels between different forms of creative expression, including humor. He describes artistic originality as a creative act that gives rise to the *ah!* reaction; scientific discovery as giving rise to the *aha!* reaction; and comic expression as prompting the *haha!* reaction.

*Ah!, aha!* and *haha!* — occur because the creator connects things in unexpected ways. Lewis Thomas suggests the quality of a scientist's research can be measured by the intensity of astonishment, the degree of unexpectedness. Is "good science" a fortunate surprise? Or is there an art of research?

Of Webster's definitions of art, several seem to relate to research, especially research in the broad sense suggested by Nobel laureate immunologist P. B. Medawar as exploratory activities whose purpose is to come to a better understanding of the natural world.

The first definitions categorize art as "the power of performing certain actions, es-

pecially as acquired by experience, study or observation" and "skill in the adaptation of things in the natural world." The discovery of properties of light-amplified single emission radiation, and its adaptation to surgery and metallurgy and reproduction of sound and video through laser technology, is art in the latter sense. Art as "an occupation or business requiring knowledge or skill" encompasses research. But can research be "the application of skill and taste to production according to aesthetic principles"?

Medawar says research is "the art of making a problem soluble by finding out ways of getting at it." His *Advice to a Young Scientist* states: "Very often a solution turns on devising some means of quantifying phenomena or states that have hitherto been assessed in terms of 'rather more,' 'rather less,' or 'a lot of' or 'marked.' Quantification as such has no merit except insofar as it helps to solve problems. To quantify is not to be a scientist, but goodness, it does help."

## ***Beauty in the Eye of the Beholder***

In *The Meaning of Art*, Herbert Read defines art as "an attempt to create pleasing forms." He notes any general theory of art is predicated on the premise that man responds to the physical characteristics of objects.

Following this premise, beauty is regarded as "a unity of formal relations among our sense-perceptions." Perceptions of beauty vary in any period and cultural standards change. Formal rules of composition in music and art contribute to the harmony and sense of unity inherent in the experiencing of something as beautiful.

Knowledge about the rules of form and

*(Continued next page)*

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Dr. Aschenbrener is senior associate dean in the U. of I. College of Medicine.



about the artist's intention may influence the pleasure one derives, perhaps by making the composition more coherent.

Knowing Mark Rothko was exploring surface and the interaction of colors may not explain the high prices paid for his paintings of colored bars, but it does add to one's pleasure in viewing them. Likewise, an understanding of the technological difficulty of experiments that confirm a hypothesis clearly may provoke the exclamation "Beautiful!" from a fellow investigator.

### *Culture of the Times*

Acceptance of art depends in part on the culture of the times. The austerity of Mondrian's geometric shapes would hardly have been embraced by classic Greeks, for whom beauty was the idealization of nature.

New scientific theories may suffer the same fate. Just as the standards of beauty condition the acceptance or rejection of a style of art, so do the dominant paradigms in science affect receptivity to discoveries of scientists who work outside the accepted framework. Investigators who approach a problem from a unique perspective may feel isolated from colleagues and struggle to have results of their work accepted.

Artists and scientists create from facts in accordance with certain rules. The artist creates from experience of self, others and the natural world. The scientist creates from facts about the natural world. The scientist is trying to "prove nature." Scientific discovery is moving from known to known, the search for explanation of the relationship of facts. Although art, music and literature have rules of composition, these rules change over time. But research is tied to the unchanging laws of nature. A scientist may change the rate of a chemical reaction or the rate of DNA replication, but no scientist can alter the laws of thermodynamics.

In *The Courage to Create*, Rollo May defines creativity as "the process of bringing something new into being" and the creative act as "the encounter of the intensely conscious human being with his or her world."

Genuine creativity is characterized by an intensity of awareness. The artist or scientist is deeply committed, totally absorbed in the encounter and the resulting deeper awareness is accompanied by a sense of joy. The

intensity of this encounter allows the creating person to be freed from the usual state of split between subject and object — that is, it permits a unique union of intellect, emotion and volition that enables the person to relate to his/her world in a new deeper way.

This intense encounter underlies the "vision" in a new musical composition, a transforming work of literature or the elucidation of a physiologic mechanism. Some would attribute breakthrough creations to insight. May emphasizes that insight is not the product of fantasy; rather, insight occurs when a person has worked intensely.

Genuine art that enlarges human consciousness and "breakthrough" research share many characteristics. Both are the result of creative expression that alters the way we view the world. Both begin in rambling discovery when the mind is open to previously unrecognized factual relationships. Both the artist and the scientist follow an idea single-mindedly but remain open to another path. The best in art and research require flexibility, persistence, divergent thinking, intense absorption, deep commitment and, above all, the ability to see connections between seemingly unrelated things.

### *Pushing the Limits*

John Berger, in "The Work of Art" states: "When a painter is working he is aware of the means which are available to him — these include his materials, the style he inherits, the conventions he must obey, his prescribed or freely chosen subject matter — as constituting both an opportunity and a restraint. By working and using the opportunity, he becomes conscious of some of its limits. These limits challenge him, at either an artisanal, a magical or an imaginative level. He pushes against one or several of them. According to his character and historical situation, the result of his pushing varies from a barely discernible variation of a convention — changing no more than the individual voice of a singer changes a melody — to a fully original discovery, a breakthrough."

The scientist's creativity depends on the historical situation and existent technology. The intensity and direction of "pushing" determines whether the research will be a variation on an existing paradigm or revolutionary.



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# Rare Medical Tomes Are His Passion

**A**LMOST 25 YEARS AGO at a meeting of the Page County Medical Society, Clarinda neurosurgeon Dr. John Martin invited doctors from the University of Iowa College of Medicine to his home to look over his collection of medical books.

Dr. Robert Hardin, then dean of the College of Medicine, took one look at Dr. Martin's collection and asked "What are these books doing in Clarinda?" This question set in motion a chain of events which eventually led to creation of the John Martin



John Martin, M.D., of Clarinda, is the principal contributor to the famous collection of 2,500 rare and classic medical books in the Robert C. Hardin Library for Health Sciences. In addition, the retired neurosurgeon has given countless hours and his knowledge of the literature to integrating the holdings into the collection in the Martin Rare Book Room, in which he is pictured.

Rare Book Room in the U. of I. Hardin Library for Health Sciences — a room housing a collection of medical books Dr. Martin says are now "worth millions."

"I had been collecting books since 1946 but thought my collection was rather modest," relates Dr. Martin, who retired 3 years ago at age 80. "Then, Dr. William Bean (long time head of the U. of I. Department of Internal Medicine) came and spent the entire afternoon looking at my books."

Several months later, Dr. Martin received a call from the U. of I.'s chief librarian, who said Dr. Bean had told him about the books. He and the medical school librarian then came to Clarinda to check out Dr. Martin's collection. After seeing the books, they told Dr. Martin they would love to have his books for a "rare book room dedicated to medical history."

"So, in July of 1971, I packed up my books and sent them to Iowa City, where they were put in the special collections section while the new library was being built," says Dr. Martin, who is also chairman of the IMS Historical Committee. "As promised, they did indeed open a lovely room for my books on the top floor of the health sciences library. Meanwhile, I continued collecting books."

At the time the new library opened, Dr. Martin helped write a paperback catalogue of his collection called "Heirs of Hippocrates." The catalogue, recalls Dr. Martin, contained a listing of "394 pretty choice books."

"I continued collecting, becoming poorer all the time because the books were getting terribly expensive," he relates. "We did a second edition of the catalogue in 1980

and it contained 1,196 books. Then, I really began collecting in earnest."

A new edition of "Heirs of Hippocrates" is due out this spring. Dr. Martin is justifiably proud of the latest catalogue, which was designed by a book company in Boston and contains colored illustrations and a listing of about 2,500 rare books he has collected during the past 44 years. He says it is difficult to judge the value of his collection because rare medical books are appreciating so quickly.

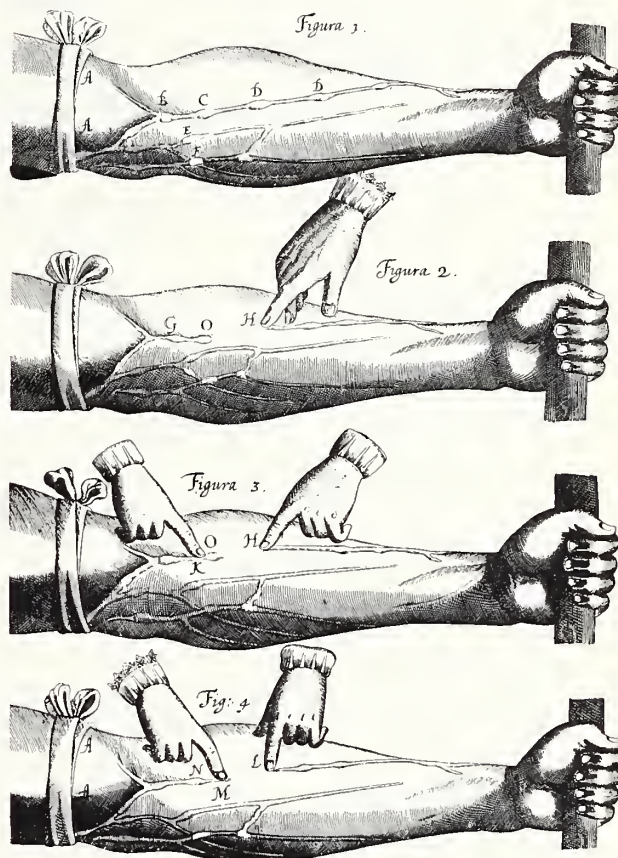
An obviously knowledgeable bibliophile, Dr. Martin explains there are several criteria which make a medical text collectible. A medical book is worth acquiring if it has a place in the development of medicine, if the author was a prominent physician, if the book is scarce, if the book had a prominent previous owner, if the book has a special binding or if the book is very old but in good condition.

"Any book published before 1500 in the early days of book binding is extremely valuable," comments Dr. Martin.

Though he still keeps a sharp eye out for rare book bargains, Dr. Martin relates he already has the acquisition of a lifetime — a book he calls the most famous book in the history of medicine.

"A year ago, I managed to buy a first edition of *De Motu Cordis* by William Harvey. There are only 58 known copies. Maybe once in 50 years one of these comes to light for sale. If you have a copy of this book, you are world class," concludes Dr. Martin. "That little book is really a mean-looking pamphlet which is badly printed and full of errors, but when we acquired it we were in ecstasy. Now we can talk back to

Yale and Stanford and tell them we, too, have a Harvey. It was a fantastic acquisition and it made my book collecting life complete."



To illustrate his contention that the blood circulates, William Harvey used this drawing of arm vein valves in his 1628 volume, *De Motu Cordis* (*On The Motion of the Heart*). A first edition of the book, one of only 58 copies known to exist, may be seen in the John Martin Rare Book Room at the Hardin Health Sciences Library, University of Iowa College of Medicine. It is open to visitors from 12:30 p.m. to 4:30 p.m. Monday-Friday and other times by appointment.

## What's Your Line?

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"Medical & Endoscopic Treatment of Upper Gastrointestinal Bleeding"

"Surgical Treatment of Acute Complications of Peptic Ulcer Disease"

"Techniques Employed for Esophageal Reconstruction"

"Cancer of the Distal Esophagus & Gastric Cardia"

"Re-operations for Recurrent Esophageal Reflux"

"Medical Treatment of Peptic Ulcer Disease"

"Treatment of Gastric Ulcers"

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**ACCREDITATION** — As an organization accredited for Continuing Medical Education, the Iowa Methodist Medical Center certifies that this CME program meets the criteria for 7 hours in Category I of the Physicians Recognition Award of the AMA.

**Saturday, May 26, 1990: Iowa Academy of Surgery Meeting**

Members of the Iowa Academy of Surgery will present papers at the scientific and clinical session on Saturday morning. This session of the meeting is open to all those attending Friday's meeting. The meeting will be held in the Ralph A. Jester Auditorium at Iowa Methodist Medical Center School of Nursing. Category I CME credits will be given for attending this interesting and informative session.

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**CONTACT:** SURGICAL EDUCATION OFFICE  
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# Twenty Years of MECO in Iowa

RICHARD M. CAPLAN, M.D.

CHARLES E. DRISCOLL, M.D.

Iowa City, Iowa

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*The authors discuss results of a questionnaire sent to the first 329 MECO participants.*

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**M**EDICAL EDUCATION IN COMMUNITY settings has presumed advantages for the student and community. Mutual attraction toward a future relationship is an outcome needed most to resolve health manpower needs. Iowa's MECO Project (Medical Education-Community Orientation) has reached a milestone—20 years.

The MECO idea arose in 1969 in Illinois, where the Student American Medical Association, assisted by the Sears Roebuck Foundation, made arrangements for 70 medical students from Illinois to spend the summer after their freshman year in 26 community hospitals. This initial effort was prompted by the geographic and specialty maldistribution of physicians. Many medical educators thought early experiences in community hospitals, primary care, and relatively small communities would incline medical students favorably toward primary care in such locations. The program's objectives were:

1. Introduce students to the organization and operation of health care institutions in the community context.

2. Introduce students to the community and its cultural, political, economic and environmental determinants of health.

3. Provide exposure to a panoply of health care personnel.

4. Help students become aware of the changing patterns of health care delivery.

5. Provide patient contact and an opportunity to experience application of basic science curricular content.

6. Help students formulate goals and make educational choices.

Each student would spend 8 or 10 weeks in the hospital becoming acquainted with all staff members and their various functions. The student would receive food, lodging and a weekly stipend. In exchange, students would perform sub-professional roles.

Dr. Caplan, newly involved in educational administration, believed MECO to be an excellent idea that should be implemented in Iowa. The cooperation of the Iowa Medical Society and the Iowa Hospital Association was enlisted and the effort succeeded. In the first summer (1970) 17 students were matched. The next summer 42 students worked in 33 hospitals. In 1974, 81 students spent the summer in 53 Iowa hospitals. The short-term enthusiastic evaluation led to a student organization taking over the publicity and the matching functions for the years following, with gentle assistance provided by the dean for student affairs, George L. Baker, M.D., until 1979 when the faculty guidance shifted to Dr. Driscoll.

*(Continued next page)*

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Richard Caplan, M.D. is Professor and Associate Dean for Continuing Medical Education. Charles Driscoll, M.D. is Professor and Head of the Department of Family Practice, U. of I. College of Medicine.



Each year the students and hospitals completed an evaluation form that provided valuable guidance for the succeeding year. Six other states offered MECO programs in 1970 and the numbers increased over the next several years. Medical literature has a few reports, mainly in the early years, but there has been no long range study of national or state experience.<sup>1-6</sup>

We believe the experience in Iowa has been valuable, but data could help demonstrate the value of continued participation to medical students, medical college faculties, community hospital administrators and physicians. The total number of American physicians has increased greatly during these 20 years, but geographic maldistribution and the insufficiency of primary care physicians still plague the health care system. If MECO deserves continued support during times of fiscal strain on hospitals, especially in smaller community hospitals of Iowa, more solid information would be useful.

## Method

A questionnaire was sent to 329 physicians who as students participated in Iowa MECO during its first 6 years (1970-1975). We did not solicit responses from the subsequent MECO students because we wished our data to reflect the relatively long-range program effects as assessed by the matured perceptions of the onetime students. Forty-one percent of the entire group have an Iowa mailing address.

## Results

Of the 329 surveyed physicians, 196 (60%) responded. Some omitted answers to a few questions. Demographic characteristics of these physicians are shown in Table 1.

The MECO program provided a first experience with hospital care for 141 of 196 (72%) students and with health care in a doctor's office for 159 of 192 (83%). A large majority of the students felt their experiences helped them better understand the role of a hospital (164/196; 84%) and a doctor's office (151/192; 79%) in the total health care system. One hundred forty-two (72%) felt MECO's clinical experiences had reinforced their basic science learning.

One hundred and two (52%) responders felt MECO influenced their eventual selec-

TABLE 1  
CURRENT PRACTICE OF 196\* PHYSICIANS WHO HAD  
STUDENT MECO EXPERIENCE 1970-1976

Gender				
Men	162			
Women	31			
Age				
Mean age	38.8	(Range 35-45)		
Present Community Size				
< 5,000	5,000-19,999	20,000-100,000	> 100,000	
16 (9%)	25 (13%)	68 (37%)	77 (41%)	
Now Practicing As				
Primary Care (FP, GP, IM, Peds, ER)			98	(51%)
Other Specialty			95	(49%)
Current Practice Arrangement				
Solo	34	(18%)		
Group	126	(66%)		
Other	31	(16%)		

\*Some responders omitted answers to a few questions; therefore, all responses do not total 196.

tion of a medical specialty. Of 92 who ultimately chose primary care, 84 (91%) felt MECO had a positive impact on their choice. (We here define primary care to include family practice, general practice, general internal medicine, general pediatrics and emergency room practice.) On the other hand, 146 (86%) responders denied MECO exerted a negative influence in the direction of avoiding primary care as a career choice.

A majority (133/193; 69%) felt MECO did not play a part in their subsequent choice of a practice location. Sixty-two responders (32%) have kept in touch with someone from the MECO hospital or community. Using Chi-Square analysis, however, we found this statistically significant ( $p < .03$ ) association: among those who ultimately settled in towns smaller than 5,000, MECO positively influenced their choice, a relationship not found for those ultimately residing in larger communities. Using an odds-ratio comparison, we found those now living in communities of less than 5,000 were 3 times more likely to have been influenced toward their final location by the MECO experience than those in cities of 5,000-19,999, 5 times more than those in cities of 20,000-100,000 and 2 times more than those in cities of more than 100,000.

The MECO experience was judged a benefit in subsequent learning and/or practice activities by 99 (51%) students. Overall, a huge majority said they would recommend

a MECO program (181/193; 94%) to present day students. One-hundred fifty-two (84%) said they would recommend it to administrators and hospital staff at their present location.

## Discussion

This follow-up study of 196 students suggests the MECO experience is a valued part of clinical learning and almost all of the responders would recommend it be a part of present day medical education. In our sample, 51% are now engaged in a primary care medical practice. This compares with a 1990 figure of 43.6% for Iowa and a 1987 figure of 37% for the nation. One could conclude either that MECO is attractive to those who already want to pursue primary care, or that MECO is able to influence some to enter that career.

With regard to specific benefits, the MECO experience appears to reinforce basic science learning by demonstrating its application to clinical practice. Most students will likely have their first experience with the delivery of medical services in a hospital or doctor's office at this time. Subsequently, our responders felt MECO helped their learning in medical school and later affected their manner of medical practice. About half the former students feel MECO has an influence on specialty choice and there may develop a positive appreciation for primary care.

The question was not specifically asked, but 9 responders commented they returned to practice in their MECO community and 4 others added they returned for a few years.

## Comments

The numbers above tell only part of the story. The comments added by many responders enrich the overall benefit obtained by so many of them. Here are a few examples (including some negatives):

- It answered my question — is there really patient care out there waiting for me?
- It was the best experience in all of my 12 years of medical training. It changed my life! It was the best possible preparation for clinical rotations.
- It would have been better to have had a valuable non-medical experience — travel to Europe, work in a coal mine, write a

book. I shouldn't have sacrificed my last free summer to a medical experience.

- It gave me a much better handle on available community services.
- I met mentors who influenced my way of thinking about patients.
- MECO helped me realize I wasn't a businessman.
- It solidified my desire to remain in the midwest.
- It gave me much perspective and respect for those who choose small town practice.
- Now this is what medicine is all about — makes the studying worthwhile.
- It helped me see the light at the end of the tunnel, that doctors are real people and medicine is fun.
- MECO showed me how a primary care doc could serve a community and also have a life of good quality.

## High Degree of Satisfaction

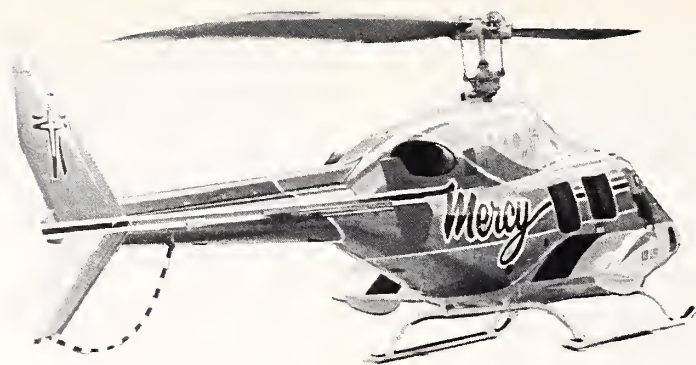
MECO has been an elective medical education offering at the College of Medicine since 1970. This look at its first participants would suggest a high degree of satisfaction from the students, and as long as hospitals are willing to continue its funding, MECO will be available. That 41% of our MECO alumni settled in Iowa is cheering to us and the profile of community size in which they finally settled makes us feel the MECO experience deserves to continue. We also believe MECO brings satisfaction, stimulation and a step toward fulfillment of long-range goals for our community hospitals and their medical staffs.

Addendum: The match for summer 1990 was completed February 12. Sixty-four hospital openings were offered but 79 students applied, leaving 15 students without a MECO opportunity for the summer. We hope hospitals will be able to make additional places available in the future.

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# Medicine and the Creative Connection

ANNE DUGGAN  
Iowa City, Iowa

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*Does the practice of medicine include an attraction to art, music and literature? For some, certainly. At the University of Iowa Health Center, the arts abound.*

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**M**EDICINE'S CONNECTION TO ART, music and literature may never be proved in the scientific sense. But, whether it is a pastime or a passion, there is a creative link that allows physicians and scientists to practice and enjoy culture in all its forms.

## *Art and Scientific Inquiry*

Some see art in the human body and use that as an educational tool. Ten years ago, Randy Kardon, U. of I. assistant professor of ophthalmology, used electron microscopy to show how geometric patterns are repeated on a microscopic level. Out of this he produced a text atlas of pictures of each body organ as, he says, "a teaching tool and artistic work to motivate medical students."

There are other connections with fine art. "Artists work and focus on aspects that

connect with scientific inquiry, such as how the brain processes color and shapes," says Antonio Damasio, professor and head of neurology. With a background in art through their schooling, both Antonio and his wife, Hanna, also a professor of neurology, make room for art, literature, theater and music in their intense scientific lives.

Hanna Damasio is a sculptor whose work has been shown and published. And both Damasios collect examples of 20th-century European and American art.

Art relates closely to science. Some artists work on "levels of consciousness, which in turn relate to research topics in memory," says Antonio, who directs world-renowned research on memory. The work of abstract expressionists such as Jackson Pollock, notable for his interaction of forms and combinations of color, exemplifies this contention.

Lewis Thomas, former physician-head of Memorial Sloan-Kettering Cancer Center has published many essays on medicine and science. He once wrote in the foreword to a book by a poet-immunologist that although appearing to travel different paths, poets and scientists seek to find "points of connection between things in the world which seem to most people unconnected." The same can be said of other types of art.

## *Illustrating the Human Body*

Early civilizations produced drawings concerning aspects of life and death. Later, Leonardo DaVinci made hundreds of drawings of the human body that were used to teach anatomy and physiology and now pro-

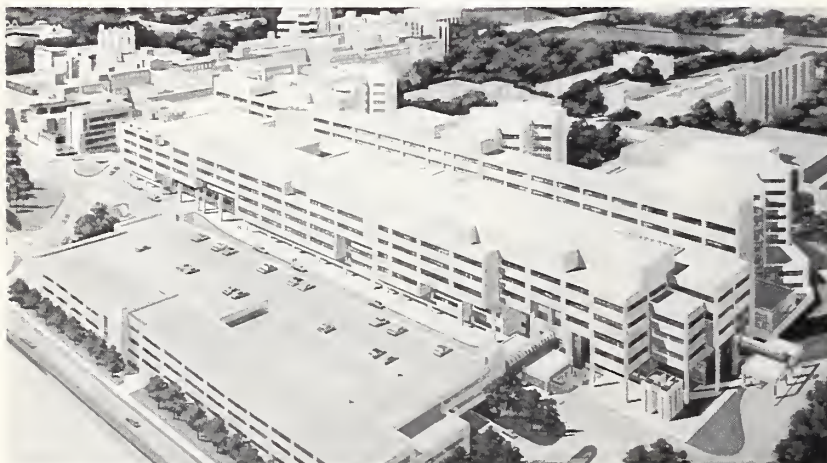
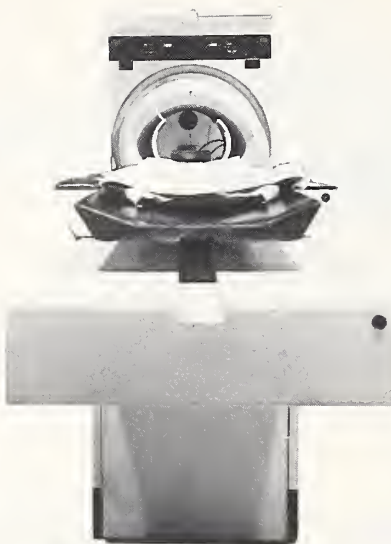
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Anne Duggan is a writer in the U. of I. Office of Health Center Information and Communication.



Clockwise from lower left: University Hospitals architecture spans most of this century, from 1927 Gothic tower (far left) to Pappajohn Pavilion (far right) to be completed in 1993 . . . "High-tech" sculpture: Magnetic Resonance Imager . . . Living sculpture: computer image shows how patient will look following facial surgery . . . Brilliant laser beams create yet another art form, even as they make it possible to perform surgery of the utmost precision and delicacy.



vide us with a dimension of beauty as well. More recently, Norman Rockwell's paintings of the family doctor show us a way of life that is long gone.

Early medical illustrations served an educational purpose. In the 17th century, William Harvey built on his teacher's discovery of valves in the veins to support his contention that the blood circulates through the body. His classic illustration continues to have historical and artistic value.

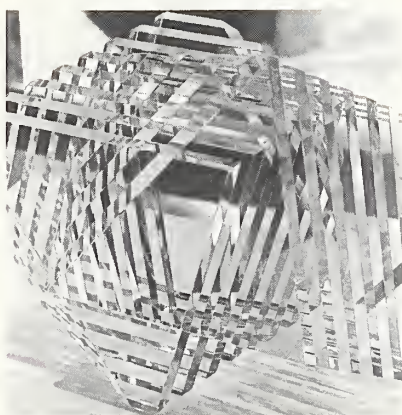
### *Physicians as Wordsmiths*

Physicians are well-represented in literature. William Carlos Williams was a poet and writer who practiced medicine. Michael

Crichton's science fiction is enjoyed by millions of readers. Anton Chekov, a physician in turn-of-the-century Russia, wrote plays such as "The Seagull" and "Three Sisters." Walker Percy uses his clinical sense to look at life, death and human infirmity.

Richard Selzer, who spent 15 years as a surgeon by day at Yale-New Haven Hospital and a writer by night at home, retired from surgery in 1984 to write. The author of 5 books of essays and short stories has described his writing as "filled with a quest for faith. I think that derives from people trying to come to terms with death."

Sir Arthur Conan Doyle, himself a physician, wrote the Sherlock Holmes stories us-



Clockwise from left: A delight to eye and ear alike, the mirrored atrium in Colloton Pavilion hosts frequent musical performances . . . Glass sculpture, one of many art pieces displayed throughout University Hospitals and Clinics . . . Pediatrics Professor Emeritus Charles Read displays his photographic entry, taken in Thailand, in the 12th annual UIHC Staff Art Show.



ing a physician as helper to the great detective. Richard Caplan, UI professor of dermatology and associate dean for continuing medical education, points out that while Dr. Watson was a handy foil for the fictional detective, his doctoring left something to be desired. Caplan, who organized an Iowa City area Sherlock Holmes Society last year, performs as a pianist frequently for University Hospitals patients, families and staff.

### ***The Source of Creativity***

While the partnership of art and science is a strong one, the transition between the 2 worlds is not always easy. Yet it's possible, says Jay Krachmer, professor of ophthalmol-

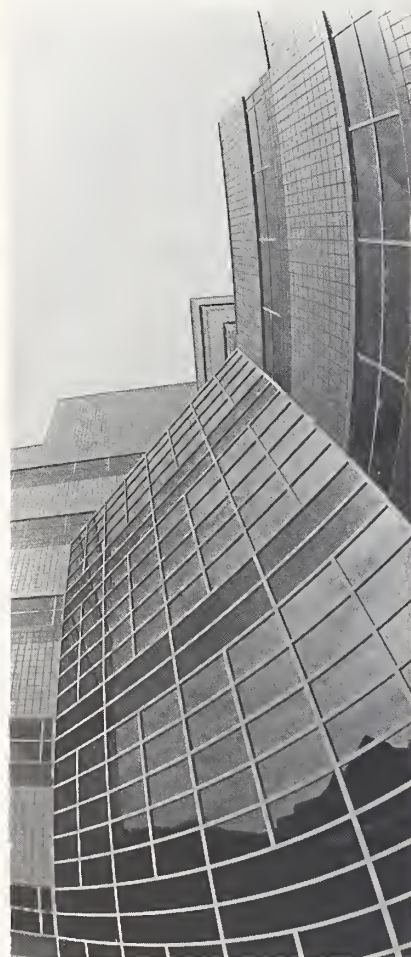
ogy, who combined photography, painting and ancient Chinese poetry to create this month's *IOWA MEDICINE* cover. "The challenge is to find a way to uncover that buried creative potential that's in all of us."

Kenneth Hubel, professor of internal medicine, photographs changes in Iowa City seasons and architecture. "It's a way to show how the seasons change the look of familiar places. It gives me personal recollections and creates a sense of how I think about Iowa City." Many Hubel photographs are part of the UI Hospitals collection. Hubel also plays saxophone in the medical college jazz band, called Doc's Big Band.

*(Continued next page)*



Clockwise from top: Electron microscope shows how patterns of daily life are reflected in the inner workings of the body, as in this 400X view of an artery snaking through a vein . . . Soaring facade of the new Eckstein Medical Research Building almost suggests the "far-out" nature of studies pursued within its walls — human molecular genetics, cell biology, immunology, recombinant DNA, neuroscience . . . Art Cart volunteer brings painting for approval by patient, in whose room it will hang during her hospital stay.



"The nice thing about carrying a camera is it takes your mind off other concerns. You end up looking at the world in a different way. Taking pictures is a good transition between home and work and back," Hubel says.

### ***Collecting is Rewarding and Educational***

Since the early 1970s, Johann Ehrenhaft, emeritus professor of surgery, has collected Old Master prints of the Renaissance and post-Renaissance. Gerald and Hope Solomons, professors emeriti of the Colleges of Medicine and Nursing, respectively, enjoy a collection that ranges from Oriental works,

pre-Columbian art and North American Indian ledger drawings.

Collectors of art also spend a great deal of time researching their interests. The Ehrenhafts read about the prints and artists and visit museums to look and compare. He estimates their collection at almost 300 pieces. "Prints have a close connection to history," Ehrenhaft says. "Most people couldn't read or write then, so prints were an important visual impression of the society." Gerald Solomons, who gives talks on images of medicine in pre-Columbian art, is also interested in marquetry, the cutting of veneer wood to make pictures. Hope Solomons has a small gemstone bead business.



Clockwise from top: Electronic retrieval of patients' diagnostic images creates what in another context would be judged abstract design . . . Angled walls create ever-changing shadow patterns, help hold Bowen Science Building

to human scale for hundreds of students and faculty who study, teach, research there . . . Medical Museum exhibits in University Hospitals help visitors learn of major milestones in medical history.



Research Station

The Polio Years: 1948 to 1954



## Art is Everywhere

In the University of Iowa medical setting, art and culture are not confined to some people or places — they're part of everyday surroundings and existence. For instance, University Hospitals' Project Art maintains a permanent collection of photographs, lithographs, paintings and art posters throughout the institution. Project Art, which began 10 years ago, also mounts art exhibits, including the annual staff art show, and sponsors musical programs.

When Iowa students and faculty study, lecture and work in the acute-angled Hardin

Library for the Health Sciences and the Bowen Science Building, they are utilizing the designs of world-famous architect Walter Netsch. University of Iowa Hospitals and Clinics patients, staff, visitors and students relax in soaring spaces and on restful terraces, in buildings designed for 21st-century health care.

With its light-capturing glass facade, the newest UI structure, the Eckstein Medical Research Building, is a striking example of post-modern architecture that successfully blends educational and scientific needs of the building's users by providing core facilities for interdisciplinary research at the molecular and cellular levels.



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# Safety of Iowa's Blood Supply

RONALD STRAUSS, M.D.

Iowa City, Iowa

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*Though Iowa's blood supply appears to be among the safest in the world, there are risks associated with transfusions. The author discusses attempts to reduce incidence of diseases transmitted through various types of transfusions.*

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FOR MANY YEARS, THE RISKS of blood transfusions have been well recognized. However, the recent threat of acquire immune deficiency syndrome (AIDS) and an increased awareness of hepatitis have sharply focused the attention of the public and the medical community on the dangers of transfusions.

Several things are being done to diminish risks. Efforts are made to give transfusions only when they truly provide benefit. The pros and cons of each transfusion should be weighed and a note written in each transfused patient's medical records that contains elements of informed consent (i.e., that the benefits, risks and justification for transfusion therapy have been discussed with the patient).

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Dr. Strauss is a professor of pathology and pediatrics and medical director of the Elmer DeGowin Memorial Blood Center at the University of Iowa Hospitals and Clinics, Iowa City.

Finally, hospital transfusion committees are conducting audits of transfusion practices to monitor the appropriateness of blood use. Thus, blood components should be prescribed cautiously and only after a careful assessment of the potential benefits and risks of each transfusion.

## Standard Donor Risks

The major risks of blood transfusion are listed in Table 1. Acute, severe hemolytic reactions occur when major erythrocyte incompatibilities exist (e.g., group A blood given to a group O patient whose plasma contains anti-A antibodies). These reactions are almost always caused by clerical, rather than laboratory, error (i.e., misidentification of blood samples, donor units, patient to be transfused).

A fatal, hemolytic transfusion reaction is estimated to occur once every 50,000 transfusions. Delayed, hemolytic transfusion reactions are generally less severe and are caused by the rapid emergence of antibody during an anamnestic (secondary) response. In this sit-

TABLE 1  
MAJOR RISKS OF HOMOLOGOUS BLOOD TRANSFUSIONS

- 
- Acute hemolytic transfusion reaction
  - Delayed hemolytic transfusion reaction
  - Alloimmunization to foreign blood antigens
  - Bloodborne infections
  - Metabolic, infectious and mechanical problems due to storage and infusion
- 

THE IOWA MEDICAL FOUNDATION HAS DESIGNATED THIS ARTICLE AS THE HENRY ALBERT SCIENTIFIC PRESENTATION FOR APRIL 1990



uation, the recipient was immunized previously to erythrocyte antigens but the quantity of antibody fell below the level of detection. Thus, incompatible blood could be selected, inadvertently, for the patient despite optimal testing procedures.

Infections and infectious agents transmitted by blood transfusions include hepatitis, retroviruses (HIV and HTLV-I), herpesvirus (cy-

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*'In 8 studies comparing directed and standard donors, 6 found rates of positive infectious disease marker tests to be significantly higher in directed versus standard donors.'*

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tomegalovirus and Epstein-Barr virus), malaria, syphilis, brucellosis, trypanosomiasis, filariasis and a variety of bacteria that may contaminate blood products as they are prepared and stored. The current risk of infection posed by the transfusion of each unit of blood cannot be predicted accurately because several changes in donor screening requirements have been made recently. The changes are certain to lower the risks, but more time is necessary to document their full effect. Even if available, the information would be of limited value because most patients are exposed to multiple donors when they are transfused.

Although the risks of transfusion associated infections increase with the quantity of transfused blood, risk and quantity do not increase proportionately (i.e., the risk of a 10 unit transfusion is not exactly 10-fold greater than the risk of one unit). Moreover, great variability for some infections exists in different geographical regions.

Although current risks are not known with precision, a general estimate can be made. Studies performed largely during the 1970's found the risk of developing hepatitis following a course of transfusion therapy to be about 3-16%.<sup>1</sup> In the majority of patients, the diagnosis was based on the very nonspecific finding of an unexplained elevation of serum enzyme studies. Several factors, independent of hepatitis, can elevate serum enzymes, and the diagnosis may have been incorrectly made in

some patients. In support of this concern, the rate at which hepatitis occurred in control patients (i.e., similar surgical procedures performed *without* transfusions) was 2.9% in one of the studies.<sup>2</sup>

Current rates of post-transfusion hepatitis are estimated to lie somewhere between 2.0 and 0.02% (i.e., between 2 in 100 and 2 in 10,000 patients are predicted to develop hepatitis within 6 months following a course of transfusion therapy).<sup>3</sup> During the period from 1976-86, post-transfusion hepatitis was reported to the transfusion subcommittee at the University of Iowa Hospitals and Clinics at a rate of one per each 47,975 transfusions (0.002%).

Current donor screening and testing for HIV, the virus causing AIDS, has nearly eliminated this virus from the blood supply. In Iowa, the chance that an infected blood donor might slip through the screening system is about 1 in 1 million. This number is calculated using the following information. About 1 in 10,000 blood donors living in our region is infected with HIV—based on a confirmed positive HIV antibody test. Approximately 1% of infected donors will test false-negative using current screening assays (i.e., the antibody test will fail to detect an infected donor at the time of donation). Thus, 1% of the 1 in 10,000 infected donors — or 1 in 1 million — will slip through the system.

Other methods have been used to calculate this risk and rates vary among different donor populations. Hence, the reported risks of missing an infected donor range from 1 to 12 per million.<sup>4</sup>

### ***Directed Donor Risks***

A directed (designated) blood donation is one in which an individual, at the request of a patient, donates blood reserved specifically for the subsequent transfusion of the requesting patient. In theory, the patient believes blood from directed donors is safer than that obtained from standard donors because of personal knowledge about the medical history and lifestyle activities of the directed donor. This theory, to date, has not been convincingly demonstrated to be true. Whether obtained from standard or directed donors, blood transfusion of this type are homologous (i.e., from one person to another) and they pose all of the risks listed on Table 1. However, the chief

area of debate regarding the quality of directed donor blood involves the risks of bloodborne infections.

The comparative safety of blood obtained from directed versus standard donors could be tested, directly, by a prospective study in which transfusion recipients would be evaluated by serial clinical and laboratory observations for 6 months following transfusion of blood obtained exclusively from one or the other of the 2 donor groups. No such study has been reported. Instead, the comparative safety of directed and standard donor blood has been estimated, indirectly, by measuring the frequency of positive infectious disease marker tests (i.e., those routinely employed to screen for HIV, hepatitis and syphilis) in the 2 donor groups.

Obviously, test positive units do not pose a risk because they are never transfused. However, it is believed test negative units of blood collected from donor groups with high rates of positive tests are relatively more dangerous for a couple of reasons. First, some may be infected, yet give negative results (i.e., false-negative). Second, individuals carrying one transfusion-transmitted disease tend to carry others (e.g., homosexuals or intravenous drug abusers are often simultaneously infected with HIV, hepatitis, cytomegalovirus, etc.). Thus, donor groups with high rates of positive infectious disease marker tests may harbor diseases for which specific tests are not done and units of test-negative blood from these groups may be infectious — despite appearing to be safe.

A number of studies that compared results of infectious disease marker tests in directed versus standard donors were reviewed previously.<sup>5</sup> The data must be interpreted with caution because most reports were still preliminary. Keeping this reservation in mind, however, evidence suggests blood obtained from directed donors may be less safe than that from standard ones. In 8 studies comparing directed and standard donors, 6 found rates of positive infectious disease marker tests to be significantly higher in directed versus standard donors.<sup>5, 6</sup> To date, 11 reports exist that compare safety (based on infectious disease marker rates) of directed vs. standard blood donors; 9 of 11 found directed donors to be less safe.

Although these studies require critical review and publication, the results should not

be surprising. Standard donors, who are members of high-risk groups, have no pressure to donate and should exclude themselves before, during or after donor screening. In contrast, family members and friends, when asked to serve as directed donors, may be placed in embarrassing situations that are so threatening that they will conceal vital information rather than refusing to donate. Naturally, patients who desire directed donors are convinced their donors are ideal. The fact that this conviction may not, in fact, be true when studied scientifically is critical because truthfulness

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*'Thus, 1% of the 1 in 10,000 infected donors — or 1 in 1 million — will slip through the system.'*

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is mandatory for optimal donor screening and testing.<sup>4, 6</sup>

Directed donor programs are widespread and many blood centers offer this service because of emotional, social, legal and economical pressure. The fears, misunderstandings and naivete of the general public about blood transfusions is sometimes so great that medical advice is refused and directed donors are demanded by the patient. Understandably, some physicians acquiesce. However, whenever possible, it seems prudent to discourage directed donations until the comparative safety of directed and standard donors is clarified.

Of note, blood from family-member, directed donors may present additional unsuspected dangers in the future. Recently, lethal graft-versus-host disease was reported in adult surgery patients who received blood from their children — a situation ascribed to the genetic similarity of patients and donors from the same family.<sup>7</sup>

### ***Autologous Transfusions***

As an alternative to homologous blood transfusions, it is always desirable to consider a transfusion of one's own blood (autologous transfusion).<sup>8</sup> This type of donation/transfusion program applies largely to elective surgery patients. Most patients scheduled for procedures in which blood transfusions are likely

*(Continued next page)*



to be given should ask their physician about preoperative autologous blood donation.

Although this program is desirable for many, not all elective surgery patients should participate. Preoperative autologous donation is generally considered *inappropriate* for patients with the following: need for urgent surgery; hematocrit <33%; scheduled for a procedure in which blood transfusions are not likely to be needed (usual order is type and screen); normal pregnancy; unstable heart or vascular disease (arrhythmia, congestive heart failure, severe angina or recent stroke) or current infection. Most patients in reasonable health can donate 4 to 6 units during the weeks immediately preceding surgery, providing they are given therapeutic amounts of oral iron.

For patients unable to preoperatively donate, surgeons should consider using intraoperative isovolemic hemodilution and salvage of shed blood either during or after

surgery, providing the transfusions are likely to be needed, a sufficient quantity of shed blood will be salvaged and the patient is free of medical conditions that would contraindicate the technique.

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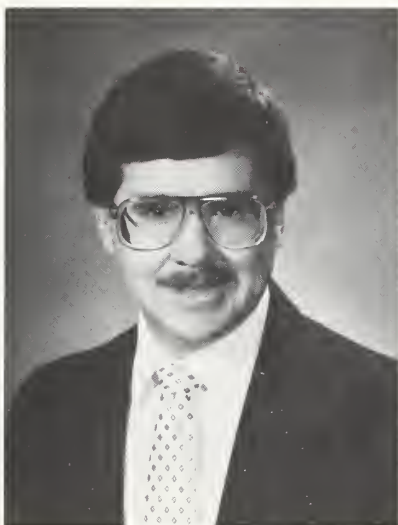
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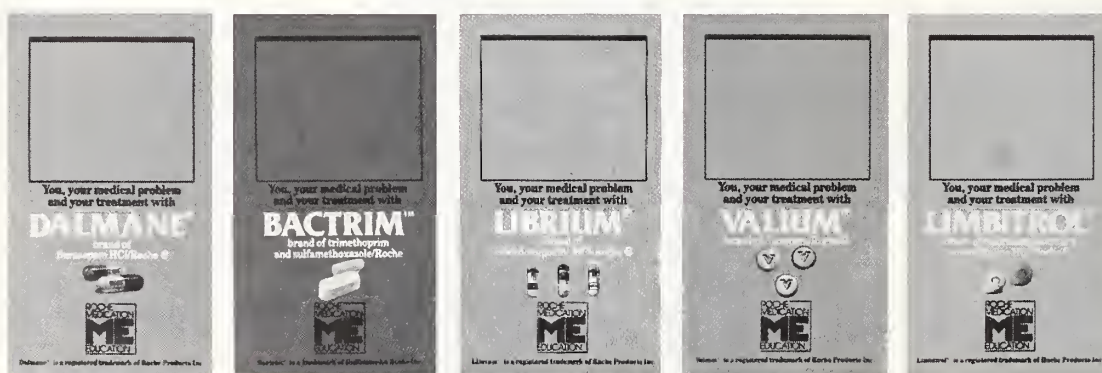


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## Marion E. Alberts, M.D.

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The Editor Comments

# Art and Medicine



THE ART OF MEDICINE and medicine in art have been associated closely throughout history. One needs only to reflect upon the work of great artists such as Leonardo de Vinci (1452-1519) and Albrecht Durer (1471-1528), the lithographs of Honoré Daumier (1808-1879), the etchings of Thomas Rowlandson (1756-1827) and the lithographs of Käthe Kollwitz (1867-1945). Noteworthy also are the renowned anatomical illustrations by Andreas Vesalius (1514-1564). Truly the fine arts and the art of medicine are amalgamated into the alloy of the structure of life.

As I pondered over possible thoughts to commemorate the theme of this issue of *IOWA MEDICINE* I was reminded of several quotations. As I sought the full text of the particular quotations I came across others. With the readers' indulgence, I share these with you. Each exemplifies thoughts that have held true through the years.

An aura of mystique embellished the art of medicine in the past, for certainly the science of medicine was sparse. That aura of mystique is dominant in much of art of centuries past. Modern medicine, however, is less a mystery for our society has demanded enlightenment. In recent years no profession has been so free with information about the knowledge possessed by its members. Modern communication and art (photography, television and the printed word) provides full exposure of medicine to society as a whole.

However, there remains an art of medicine — learned by experience. Let us hope that physicians of the future never cast that virtue aside in favor of pure science. The patient is not an object of total scientific wonderment, for each one possesses human

qualities of hope and faith in the ministrations of a physician. — M.E.A.

The art of the practice of medicine is to be learned only by experience; 'tis not an inheritance; it cannot be revealed. Learn to see, learn to hear, learn to feel, learn to smell and know that by practice alone can you become expert.

*Sir William Osler (1849-1919)*

*Quoted by Wm. B. Bean in  
Sir William Osler: Aphorisms*

Medicine is not only a science; it is also an art. It does not consist of compounding pills and plasters; it deals with the very processes of life, which must be understood before they may be guided.

*Paracelsus (1493?-1541)*

The first cry of pain through the primitive jungle was the first call for a physician. . . . Medicine is a natural art, conceived in sympathy and born of necessity; from instinctive procedures developed the specialized science that is practiced today.

*Victor Robinson (1886-1947):*

*The Story of Medicine*

Fine art is that in which the hand, the head and the heart go together.

*John Ruskin (1819-1900): The Two Paths*

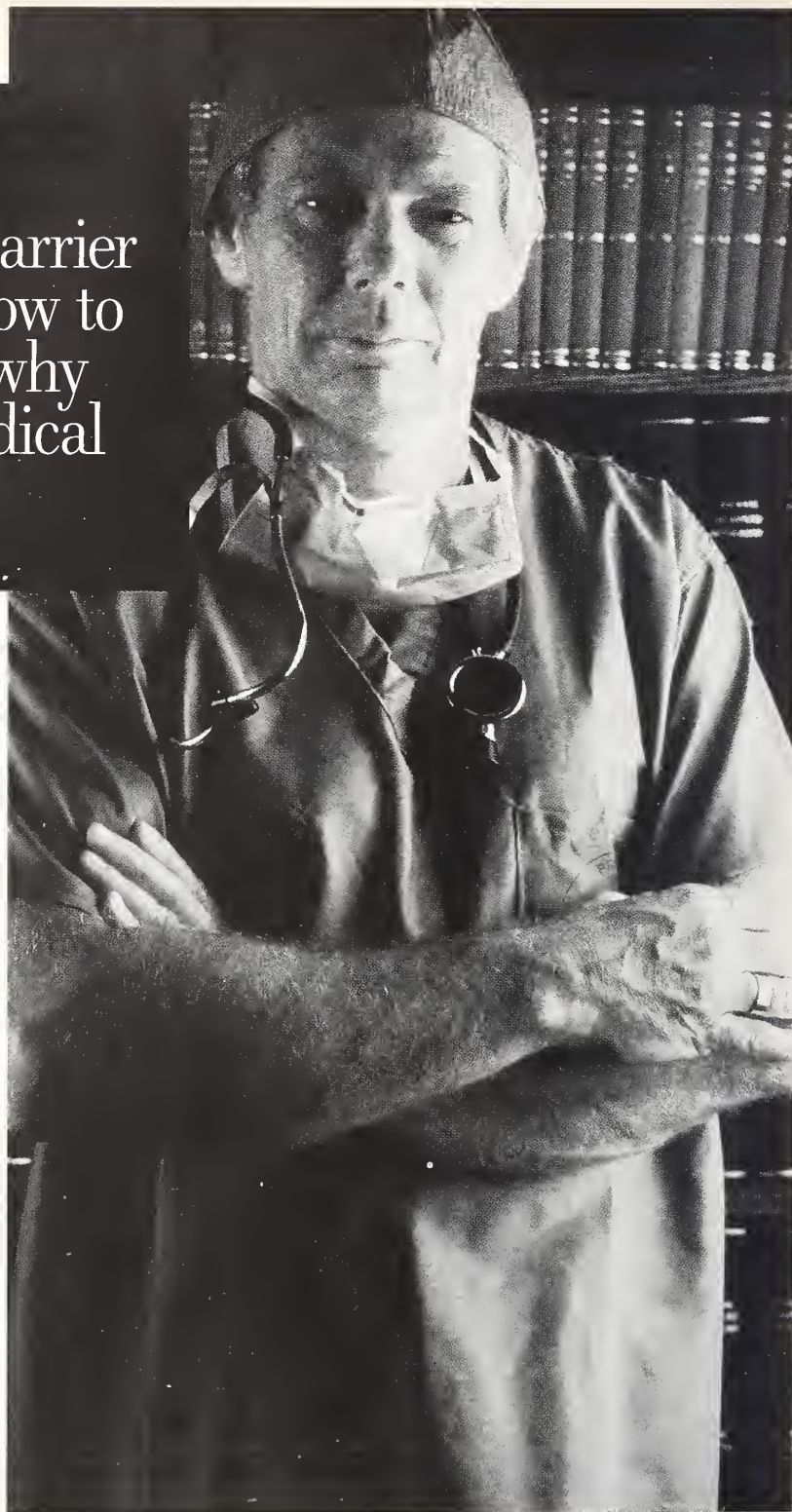
The truth is, that medicine, professedly founded on observation, is as sensitive to outside influences, political, religious, philosophical, imaginative, as is the barometer to the changes of atmospheric density.

*Oliver Wendell Holmes (1809-1894):*

*Medical Essays, Currents  
and Counter Currents in Medical Science*



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## **Exporting Death: A New Opium War**

**C**ONSERVATIVE ESTIMATES PUT THE number of world tobacco-related deaths at 2.5 million people per year, far in excess of deaths from AIDS, heroin, cocaine, accidents, suicide, homicide, war or terrorism combined. That's one death every 13 seconds from heart disease, lung cancer, stroke and emphysema. For the U.S. alone, more than 350,000 deaths per year are attributable to smoking. That's quite an accomplishment for a substance considered neither a drug, food, nor cosmetic by the FDA.

Worldwide, tobacco consumption has increased 73% in the past 20 years, with 5 trillion cigarettes lit each year. China accounts for 25% of total consumption, with the U.S. a distant second at 15%. The developing nations now consume 25% yet account for one-third the global increase in the last 10 years. Sales in the U.S., however, have dropped 7% since 1980.

How have U.S. transnational companies kept up their profit rate? During the past 2 decades they have increasingly turned to Africa, Latin America and Asia. The U.S. industry has readily stated that "much of the future for world cigarette sales lies in finding a market away from home."

Tobacco consumption has risen more than 30% in Africa and Latin America since 1970, when U.S. consumption started to decline, with Asia being a closed market. The rapid increase is likely a result of "demand creation," via advertising and promotion. Political and economic coercion also explain the rapid rise in consumption. The opening of Asian markets is an example of the U.S. government pandering to powerful tobacco multinational conglomerates.

Under the Reagan administration, the trade representative and the State Department made promotion of American tobacco exports a high priority. Their weapon is Section 301 of the Trade Act of 1974, which gives the trade representative power to impose trade sanctions against any nation whose trade policies are "unjustifiable, unreasonable, or discriminatory."

In late 1986, Japan lifted its 28% tariffs on foreign cigarettes after the Reagan administration threatened sanctions. Cigarette advertising now ranks second in total TV advertising time, up from 40th in 1986. Cigarette sales have risen 2% in that time, reversing a 20-year trend downward.

Until December 1986, Taiwan had banned all cigarette advertising. Under U.S. sanction pressure, it dropped its strict quotas and tariffs on imported cigarettes. In gratitude, RJ Reynolds sponsored a rock concert with the admission price being 5 empty packs of Winstons.

In May 1988, after a visit from Vice President George Bush and threats from North Carolina Senator Jesse Helms that we would cancel duty-free status of Korean imports, Korea reduced tariffs on imported cigarettes, increased the number of import outlets and permitted advertising.

Cigarettes sold overseas have much higher levels of nicotine than those sold in the U.S. Also, many cigarette companies lure small farmers into switching from food crops to tobacco with free seed, fertilizer and pesticides. This switch has increased the developing world's debt for imported foods from \$8 billion to \$50 billion in 10 years.

Last spring, the United States Cigarette Export Association requested the U. S. government force Thailand to abandon its ban on cigarette advertising, giving them unrestricted license to promote U.S. cigarettes. On May 25, 1989, the U.S. Trade Representative began a one-year investigation into Thailand's trade practices with respect to the marketing of cigarettes, challenging the ban on cigarette advertising in that country. Last summer, one mission of Vice President Quayle's visit to Thailand was to convince them to open up their markets.

The U.S. government has based its policy on doublespeak. Clayton Yeutter, U.S. secretary of agriculture and former trade representative, has said, "We have no intention of challenging the health regulations of any other country on tobacco products, if those regulations demonstrate a plausible concern for human health." If we did find that advertising bans do not demonstrate a plausible concern for human health, it is hypocrisy flying in the face of U. S. law, which

*(Continued next page)*



forbids all broadcast advertising to Americans as a public health measure.

Dr. Peter Bourne, president of the American Association for World Health, has said, "Despite our great concern about the effect of Colombian cocaine on young Americans, more Colombians die today from diseases caused by tobacco products than do Americans from Colombian cocaine."

We are not aiding the poor of the world with our support of multinational companies that sell disease and death. This could be a 20th century American version of the 19th century Opium Wars, when Britain used its political and economic hegemony on China to open its doors to opium imports. Thousands subsequently became addicts. The consistency of President Bush's administration must be questioned as he launches a war on drugs while yielding to pressure of tobacco multinationals. — *Tim Holtz, Iowa City.*

## What Does the Public Want?

**T**HE IDEA OF A National Health Program (NHP) is gaining acceptance in the media. As a result the question of public opinion relative to an NHP is also receiving attention. Two conflicting opinions are summarized below.

The first argument is well presented by Robert J. Blendon in JAMA. He cites opinion polls repeatedly demonstrating that 80% of the public believes everyone has the right to adequate health care and 76% believe the government has the responsibility for guaranteeing it. "A substantial majority (68%) favor the adoption of a tax-funded program of universal health insurance to accomplish these goals." Dr. V. Navarro in 1982 cited similar data in making an argument against President Reagan's proposed budget cuts in health care funding.

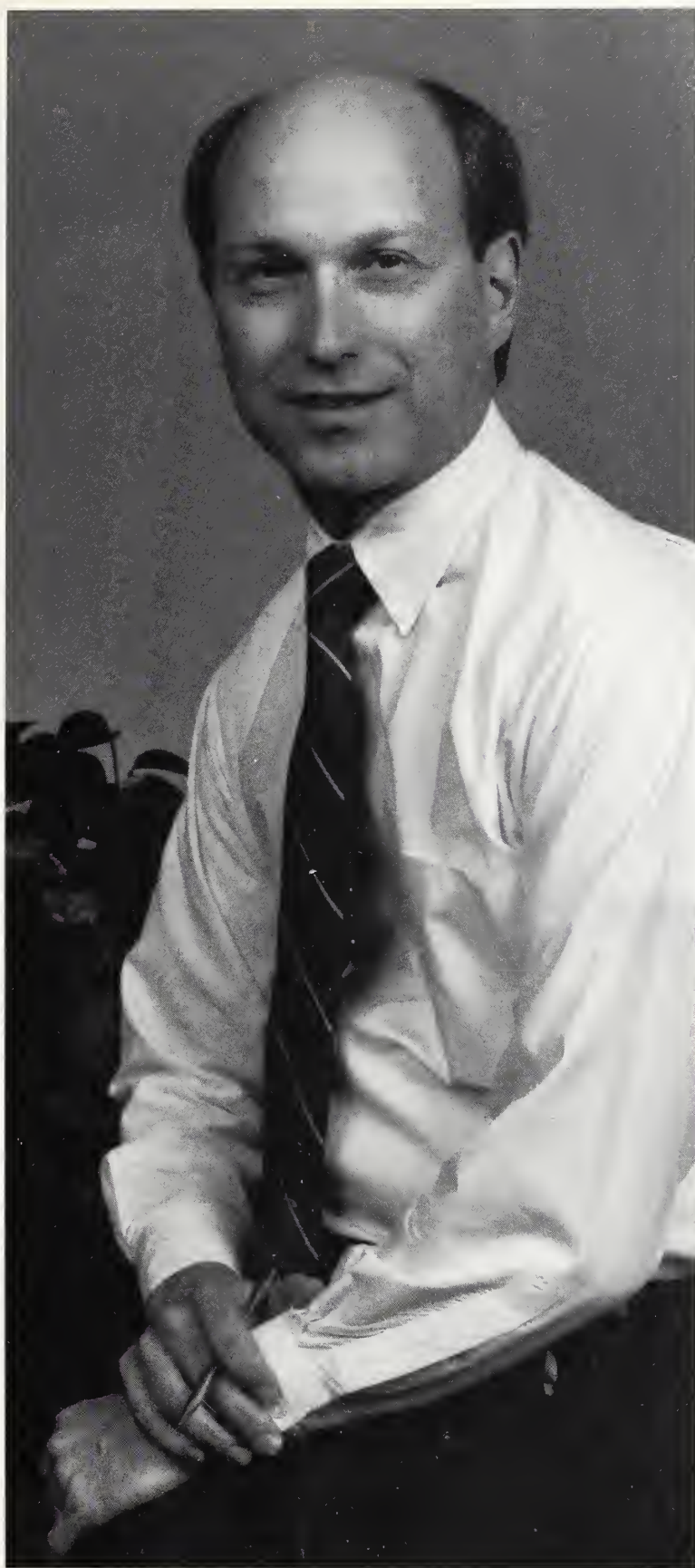
Interestingly it is with the economic issue this argument runs into problems. Blendon points out that less than 30% are willing to pay over \$50 per year in new taxes for creation of an NHP. In fact, only "tax-free" proposals such as requiring employers to provide employee health insurance receive strong support (77%). This is not surprising since the majority of Americans already have access to health care and do not expect to

benefit. Therefore, it would seem the political argument of whether a government-run NHP is more popular than our current free market system is hardly worth the effort it would take to make it. Americans support the concept. NHP proponents should concentrate on convincing the majority they will benefit and it will not cost them more than they are now paying. Some proposals, such as the one suggested by Himmelstein and Woolhandler in 1989, address this issue.

The second argument includes a suggestion America is not yet politically ready for an NHP, as were Canada and Great Britain when they implemented their versions. This argument is based on the analysis of historical trends by Henry E. Sigerist. He considered 3 factors crucial to the establishment of an NHP: 1) industrialization, with its attendant economic and social insecurity; 2) emergence of political parties that represent workers; and 3) a threat to the established order. These were all present in European countries, Great Britain and Canada. Americans have industrialization problems, but there is no political party that represents workers and there is no threat to the established order. It therefore seems unlikely we can soon establish an NHP.

Both arguments imply implementation of an NHP at this time is politically unfeasible. Bandaid measures like Medicare and Medicaid will have to suffice for at least 5-10 years. The first argument suggests however, America can be convinced it is necessary and good to provide equitable health care delivery to all people. America can break with historical trends to some degree. It is perhaps most important to convince physicians and future physicians such a program is needed and can be beneficial to the practice of medicine. Yet it may be that only organized medicine must be convinced. One study suggests most physicians already support the idea of an NHP believe their colleagues oppose such proposals.

With more than 37 million people slipping through the cracks of our current system it is logical to consider alternatives. It is also apparent there is widespread support for a federally administered National Health Program or insurance system. The IMS should consider this important issue carefully. — *Harrison Robinson, Coralville.*



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### References

1. *USP DI Update*, September/October 1988, p 120.
2. *Br J Clin Pharmacol* 1985; 20: 710-713.
3. *Data on file*, Lilly Research Laboratories.
4. *Scand J Gastroenterol* 1987; 22(suppl 136): 61-70.
5. *Am J Gastroenterol* 1989; 84: 769-774.



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**Contraindication:** Known hypersensitivity to the drug. Use with caution in patients with hypersensitivity to other H<sub>2</sub>-receptor antagonists.

**Precautions:** *General*—1. Symptomatic response to nizatidine therapy does not preclude the presence of gastric malignancy.

2. Dosage should be reduced in patients with moderate to severe renal insufficiency.

3. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

**Laboratory Tests**—False-positive tests for urobilinogen with Multistix® may occur during therapy.

**Drug Interactions**—No interactions have been observed with theophylline, chloridazepoxide, lorazepam, lidocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450 enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increased serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

**Carcinogenesis, Mutagenesis, Impairment of Fertility**—A two-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a two-year study in mice, there was no evidence of a carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given

an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a two-generation, perinatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

**Pregnancy—Teratogenic Effects—Pregnancy Category C**—Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect; but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in one fetus, and at 50 mg/kg, it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in one fetus. There are, however, no adequate and well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

**Nursing Mothers**—Studies in lactating women have shown that 0.1% of an oral dose is secreted in human milk in proportion to plasma concentrations. Because of growth depression in pups reared by treated lactating rats, a decision should be made whether to discontinue nursing or the drug, taking into account the importance of the drug to the mother.

**Pediatric Use**—Safety and effectiveness in children have not been established.

**Use in Elderly Patients**—Healing rates in elderly patients were similar to those in younger age groups as were the rates of adverse events and laboratory test abnormalities. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

**Adverse Reactions:** Clinical trials of varying durations included almost 5,000 patients. Among the more common adverse events in domestic placebo-controlled trials of over 1,900 nizatidine patients and over 1,300 on placebo, sweating (1% vs 0.2%), urticaria (0.5% vs <0.01%), and somnolence (2.4% vs 1.3%) were significantly more common with nizatidine. It was not possible to determine whether a variety of less common events was due to the drug.

**Hepatic**—Hepatocellular injury (elevated liver enzyme tests or alkaline phosphatase) possibly or probably related to nizatidine occurred in some patients. In some cases, there was marked elevation (>500 IU/L in SGOT or SGPT and, in a single instance, SGPT was >2,000 IU/L. The incidence of elevated liver enzymes overall and elevations of up to three times the upper limit of normal, however, did not significantly differ from that in placebo patients. Hepatitis and jaundice have been reported. All abnormalities were reversible after discontinuation of Axid.

**Cardiovascular**—In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in two individuals administered Axid and in three untreated subjects.

**CNS**—Rare cases of reversible mental confusion have been reported.

**Endocrine**—Clinical pharmacology studies and controlled clinical trials showed no evidence of antiandrogenic activity due to nizatidine. Impotence and decreased libido were reported with equal frequency by patients on nizatidine and those on placebo. Gynecomastia has been reported rarely.

**Hematologic**—Fatal thrombocytopenia was reported in a patient treated with nizatidine and another H<sub>2</sub>-receptor antagonist. This patient had previously experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

**Integumentary**—Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

**Hypersensitivity**—As with other H<sub>2</sub>-receptor antagonists, rare cases of anaphylaxis following nizatidine administration have been reported. Because cross-sensitivity among this class has been observed, H<sub>2</sub>-receptor antagonists should not be administered to those with a history of hypersensitivity to these agents. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

**Other**—Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine have been reported.

**Overdosage:** Overdoses of Axid have been reported rarely. If overdosage occurs, activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis for four to six hours increased plasma clearance by approximately 84%.

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## Letter to the Editor

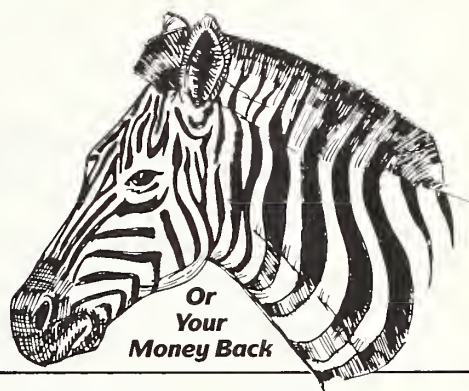
Dear Editor:

In response to an article by Dr. Helmut G. Schrott ("Managing Lipid Disorders," September 1989, *IOWA MEDICINE*), I would like to clarify one point regarding the use of niacin as part of cholesterol-lowering therapy.

Although slow-release niacin may reduce initial flushing reactions, the risk of hepatotoxicity may be greater because of increased contact time in the liver. To minimize gastric upset and/or flushing reactions, niacin can be taken with a meal. As Dr. Schrott points out, pre-treatment with aspirin may also be helpful if taken 30-60 minutes before administration of niacin.

The Niacin Information Center is an information service exclusively for physicians and other health professionals, who can obtain a free copy of the government report cited above and other information about niacin by writing the Niacin Information Center at 111 Great Neck Road, Suite 414, Great Neck, New York 11021. — *Gail Becker, R.D., Manager, Niacin Information Center.*

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## Following Concomitant Problems

ONE KEY TO AVOIDING ADVERSE review determinations is careful and complete follow-up of abnormal laboratory values and concomitant admission problems. When these conditions exist, attending physicians should document their medical rationale for treating or not treating the abnormalities. This case is an example of inadequate follow-up of abnormal laboratory values.

### *Case Study*

A 78-year-old female comes to an emergency room complaining of dyspnea, cough, nausea and diarrhea. Her respirations are shallow, with rales and wheezing upon examination. The patient, who has a history of anemia and chronic obstructive pulmonary disease (COPD), is admitted to acute care with an exacerbation of COPD.

Upon admission to acute care, laboratory reports show a white blood cell (WBC) count of 17,000, hemoglobin 9.3, serum iron 13, magnesium 1.6, BUN 13 and creatinine 1.2. A sputum culture shows hemophilus influenza, indicating acute bronchitis. The patient's urinalysis (UA) shows +3 blood, a red blood cell (RBC) count of 15, a WBC of 15 and positive cast.

IV aminophylline and antibiotics are begun, but the patient becomes increasingly dyspneic. Rocephin and erythromycin are also begun to treat the patient's bronchitis. That night the patient develops respiratory failure and requires endotracheal intubation and mechanical ventilation. During the next week the patient is weaned from the respirator. She is discharged on digoxin, .125 mg daily; Cara-

fate, 1 gram Q.I.D.; Cefotan, 500 mg B.I.D. for 10 days; prednisone, 20 mg per day at a decreasing dose; Vanceril and Proventil inhalers.

### *Reviewer Comments*

Although this patient's primary problems were severe COPD and bronchitis, the urinalysis also showed a urinary tract infection. A UA should have been repeated prior to discharge to demonstrate clearing of this infection. If the doctor believed antibiotics prescribed to treat hemophilus influenza would also clear the urinary tract infection, his/her rationale should have been thoroughly documented and plans for post-discharge urine cultures should have been made.

The low serum iron and hemoglobin on admission also indicate further work-up or treatment of the patient's anemia was necessary.

Either of 2 factors could have led to a significant adverse effect on this patient: 1) The anemia could have been an indicator of an occult gastrointestinal carcinoma. One would expect this patient with COPD to have an elevated, rather than low, hemoglobin level; and 2) The urinary tract infection could have worsened in this elderly patient. As specified by HCFA, each of these quality concerns requires a severity level rating of II.

(Upon review of this case, the attending physician supplied further documentation stating he believed the antibiotics used to treat the patient's bronchitis would clear the urinary tract infection. He also stated cultures were not performed in the hospital because he believed antibiotics would have skewed the results — and a post-discharge culture was done. Had this information been documented in the chart initially, this quality concern could have been avoided.)

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This column is provided by the Iowa Foundation for Medical Care to illustrate review requirements and procedures. This month's author is Richard Perry, M.D., IFMC president.



# Employment Relationships: Avoiding Legal Traps

**A**N INCREASING NUMBER of federal and state laws affect the employment relationship. Employment application forms cannot request information on race, color, religion, age, sex, marital status, national origin, handicap, veteran status or other protected categories. The application should include statements indicating employment is at the sole discretion of the employer and acknowledging the applicant has not falsified information.

Employment references should confirm dates of employment and position title(s) only. Questions regarding performance and personal qualities may be answered only with the written consent (and hold-harmless agreement) of the individual employee.

The employment offer letter should cover job title, duties, reporting relationship, monthly base compensation and a summary of benefits. Avoid any reference to continued, permanent or long-term employment.

Employment offers are contingent upon meeting legal residency status requirements. The Immigration Service Form I-9 is completed by the employer and employee after the employer examines 2 forms of identification.

A W-4 form for tax withholding must be completed by the employee and kept in the employee's file. Employees may change the number of dependents at any time and claim up to 10 exemptions.

Personnel files should contain the employment application, Form I-9, salary/benefit data, performance evaluations, discipline and/or termination documentation, change of sta-

tus information and attendance records. It should not contain personal references, medical information, pre-employment tests or any unsubstantiated information. Employees should be permitted to review their file, generally by written or pre-arranged request.

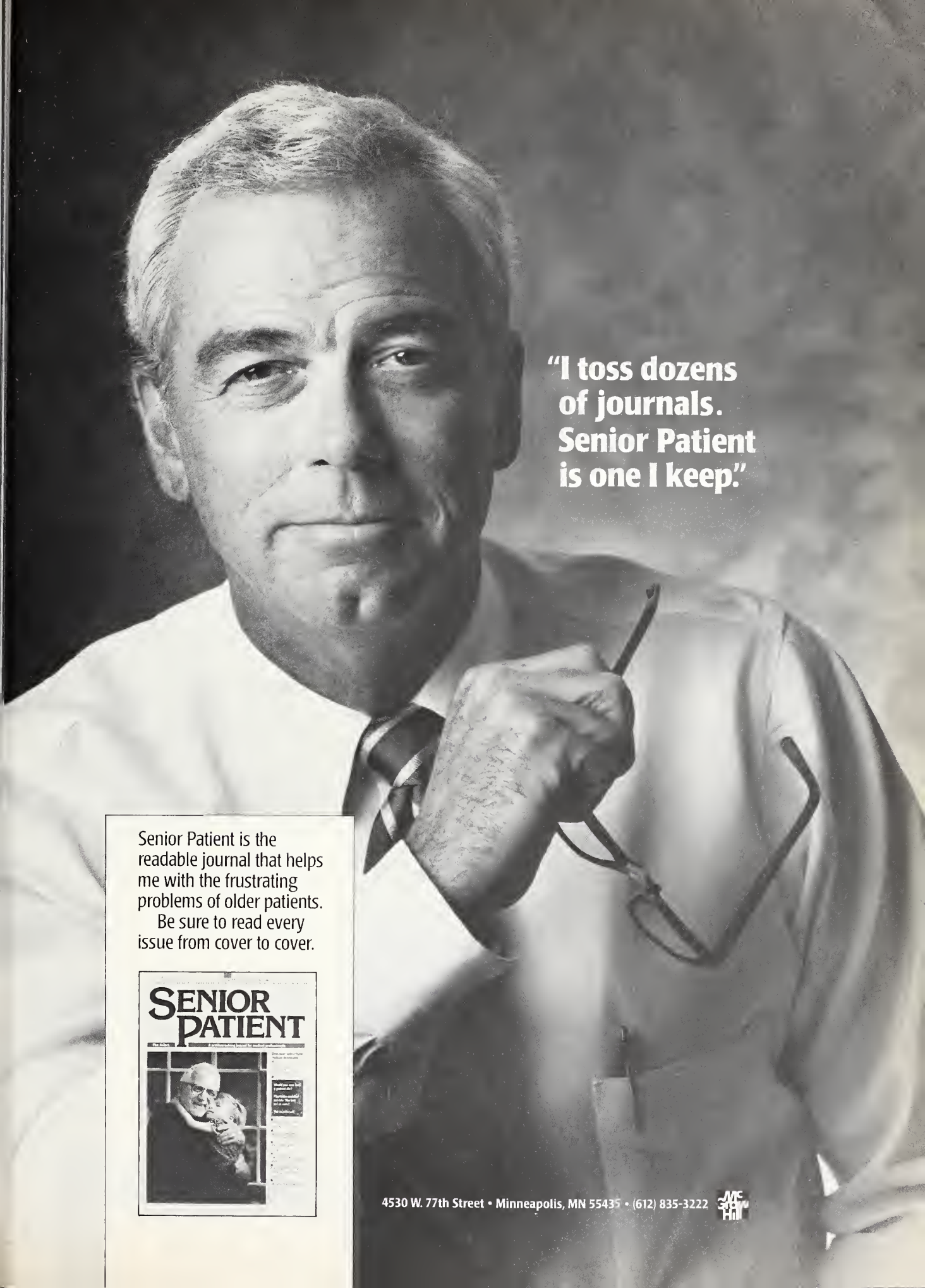
## *Employee Termination*

Reasons for termination, whether voluntary or involuntary, should be documented. Documentation of performance problems should include materials showing employees understand their duties and standards of performance, proper training occurred, direct and repeated communication of the problem occurred, support and notice(s) to correct the problem were given and results/impact of the poor performance. Only performance information should be provided, not personal qualities, traits or problems. Procedures at termination should include returning all property and keys, completing expense statements and providing forms for insurance continuation and savings/retirement plan withdrawal.

Employers of 100 or more people must file EEO-1 forms annually with the Equal Employment Opportunity Commission (EEOC), the federal agency regulating discrimination in employment. Certain employers who are primary contractors or subcontractors with the federal government and have 50 or more employees and a contract over \$50,000 must meet affirmative action requirements of the Office of Federal Contract Compliance Programs (OFCCP). They must complete an EEO-1 report each year, write an affirmative action plan, review the plan annually and submit it to an area OFCCP office.

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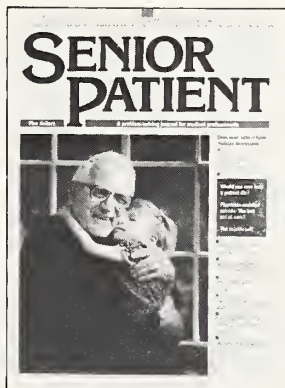
This article was written by Paul Annett and Shawn Featherston, human resource consultants of McGladrey & Pullen, Des Moines.



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## Working Together

**T**HE IOWA DEPARTMENT OF PUBLIC HEALTH and the University of Iowa have a long history of working cooperatively on many programs serving Iowans. Combining the special capabilities of each allows for efficient delivery of service to Iowans. Major programs currently coordinated between the IDPH and the University include Child Health Specialty Clinics; Regional Genetic Consultation; Newborn Screening; Dental Care for Persons with Disabilities; Laboratory Services and the Perinatal Program.

The close working relationship between the IDPH and University recently enabled Iowa to successfully compete for a federal grant. When the Centers for Disease Control announced in 1988 the availability of grants to states for disability prevention, the Iowa State Plan for the Prevention of Development Disabilities was almost finished. This plan provided a natural starting point for preparing an application. University and IDPH staff prepared a grant application. Iowa was one of 5 states awarded capacity building grants. There are 3 local projects as a part of this grant.

### *Project I*

Project I is a coordinated approach to the prevention of primary developmental disabilities. This project, based in Ottumwa, is attempting to demonstrate to the public the importance of planning for pregnancy, limiting the behaviors associated with adverse pregnancy outcomes and entering into prenatal care early in pregnancy.

The project focuses on the reduction of low birth weight as an indicator of developmental disabilities. A secondary focus targets

the teen population with the purpose of decreasing the incidence of teen pregnancy. The strategies employed are a multi-media community awareness campaign and increased education regarding pregnancy prevention and risks throughout the community schools. Attention is given to the risks associated with drug use and the importance of early prenatal care.

Another component of the program will be a case evaluation system that will investigate adverse pregnancy outcomes (low birth weight infants, birth defects, fetal deaths). This will be a cooperative effort involving local physicians, University physicians and the Office of Disability Prevention.

### *Project II*

Project II is the Rural Health Disability Prevention Project (RYDP) which is based in Marshalltown through the Agri-Care program at the Marshalltown Medical Surgical Center. Agri-Care, an affiliate of the University of Iowa Agricultural Health and Safety Service Program (IA-HASSP) provides comprehensive occupational health services to area family farms using a community-based health care model.

The goal of this project is to demonstrate that disabilities of rural youth can be reduced through concerted community-wide efforts. Three major activities are currently involved: 1) A community survey and analysis of existing safety knowledge, attitudes and behavior, 2) A farm activity involving education, a farm safety hazard audit and community-based assistance to facilitate environment and behavior changes (Farm Family Walkabout); and 3) Community workshops on farm injury control/prevention strategy planning.

*(Continued next page)*



### *Project III*

Project III is to develop a coordinated system to prevent developmental disabilities during infancy and preschool years. This project is based in Ottumwa. The purpose is to reduce the incidence of physical, psychosocial or environmental conditions or events known to have a high probability of associated developmental disability for an individual infant, toddler or preschool-aged child and to mitigate the effects of physical, sensory or mental impairments through early detection and appropriate treatment.

The project focuses on primary and secondary prevention. Maternal populations at high risk for developing abusive and neglectful parenting behaviors will be targeted. These risk factors include maternal age less than 20, substance abuse during pregnancy, late entry into prenatal care, low socioeconomic status, education level below the twelfth grade and siblings less than 18 months apart.

Once high risk parents have been identified, an educational and supportive Nurtur-

ing Program is offered. The Nurturing Program is a validated approach for working with parents and children in reducing dysfunctional interactions and building healthy, positive interactions. The approach has been field tested nationwide. The overall goals of the Nurturing Program are to: 1) provide instruction to both parents and their children birth to 5 years of age and 2) lessen the risk for maltreatment to occur.

The planning and implementation of these projects required a coordinated effort between a variety of University and IDPH staff. The University staff is designing and implementing a surveillance system that can be related to specific measurable disability outcomes, expected to be affected by community intervention activities. The surveillance system will utilize data from IDPH and University records (i.e. vital records, birth defects registry).

This special grant is one of many examples of the University of Iowa, the IDPH, local physicians and others working together to protect and improve the health of Iowa's citizens.

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# About Iowa Physicians

Dr. William Baumann, Fairfield, was honored Fairfield's Outstanding Citizen of 1989 at the Chamber of Commerce annual banquet. Dr. Baumann has practiced medicine in Fairfield for 25 years. Dr. Herman Hein, Professor of Pediatrics at U. of I. College of Medicine, is serving as special consultant to the Iowa Department of Public Health. Dr. Hein will assist in providing consultation for the Maternal and Child Health Program, training, updating standards and guidelines and conducting epidemiological studies statewide. Dr. Kirk Gieswein has joined the Maquoketa Family Clinic. Dr. Gieswein received the M.D. degree from the University of Kansas School of Medicine, Kansas City, Kansas and completed his family practice residency in Davenport.

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## Deaths

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Dr. Richard Tripp, 65, Fort Dodge, died February 4. Dr. Tripp received the M.D. degree at George Washington University School of Medicine, Washington, DC and served his residency at U. of I. Hospitals. He was a member of the American Board of Medical Examiners.

Dr. Joseph Dvorak, 94, Spirit Lake, died January 16. Dr. Dvorak received the M.D. degree from the U. of I. College of Medicine and practiced medicine in Sioux City for 40 years. He was a member of the American Academy of Ophthalmology.



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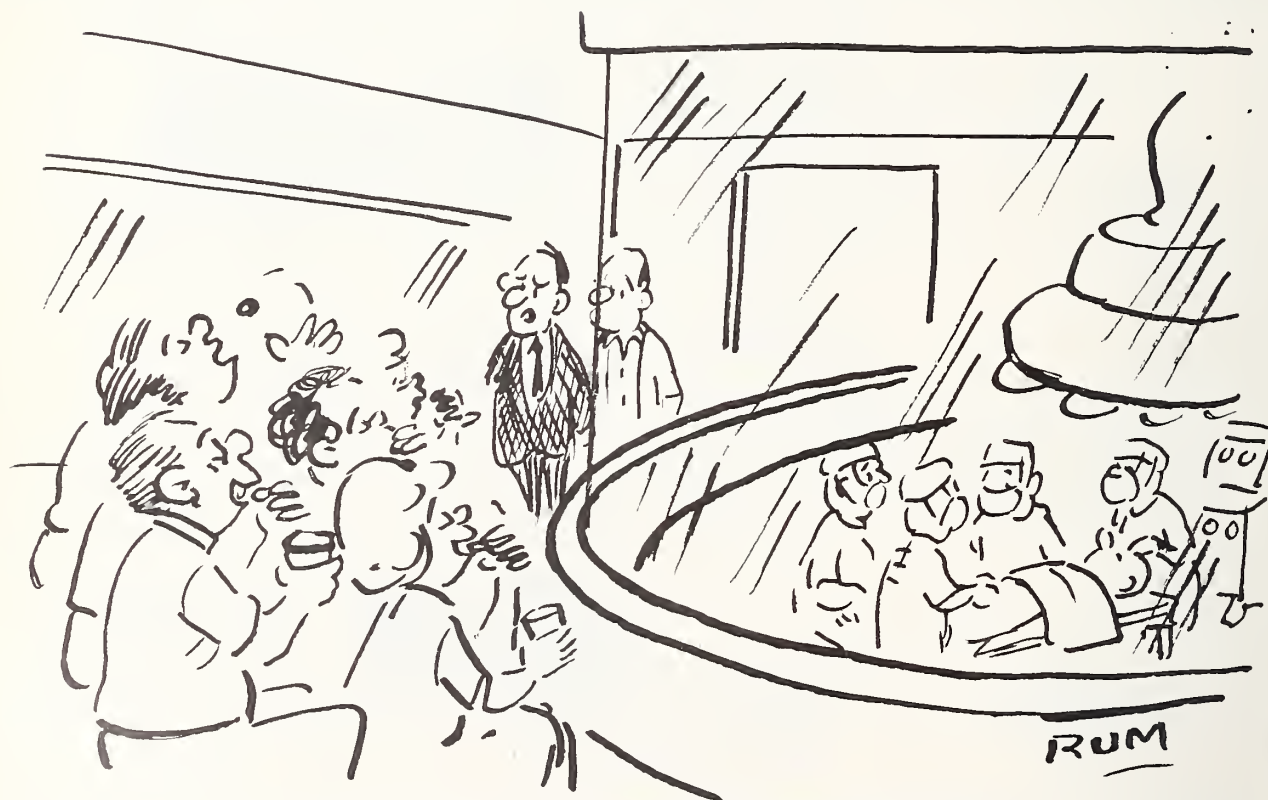
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IMPAC .....	215	Roche Laboratories .....	199, 200
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**SOUTHEASTERN IOWA** — Seeking full-time and part-time physician for new 50-bed hospital emergency department in southeastern Iowa. Attractive hourly compensation and malpractice insurance provided. Benefit package available to full-time physicians. Contact Emergency Consultants, Inc., 2240 S. Airport Road, Room 43, Traverse City, Michigan 49684, 1-800/253-1795 or in Michigan 1-800/632-3496.

**SURGEON OPPORTUNITY** — Immediate opening for general surgeon in rural Nebraska. Board Certified or Board Eligible. Must be licensed in Nebraska. Excellent benefits. Contact Wallace & Panzer, M.D., P.C., 807 North Ash, Gordon, Nebraska 69343.

**CLOSING PRACTICE** — Lots of medical equipment, including exam tables, scales, lab equipment, surgical instruments, etc. for sale. All can be seen at 111 1st Street, E., Mt. Vernon, Iowa. Please call Martha at 319/895-6707 to schedule a time to view this equipment.

**PHYSICIAN ASSISTANTS NEEDED, SOUTHEAST IOWA** — The Iowa State Penitentiary Health Care Unit currently has openings for 2 physician assistants. These positions are offered by the nation's leader in correctional health care — Correctional Medical Systems, Inc. They are full-time positions, 40 hours per week (without weekend or night call responsibilities). Duties include performing examinations, conducting routine sick call, treating minor emergencies and assisting with transfers and referrals to U. of I. Hospitals and Clinics. The company offers excellent salaries, fringe benefits, vacation and sick leave. If you are interested in beginning a challenging career in correctional medicine please contact Leonard H. Blackwell, M.D., Medical Director, Iowa State Penitentiary, P.O. Box 316, Fort Madison, Iowa 52627.

**JOIN THE PEACE CORPS, BUT STAY IN IOWA!** — We need primary care physicians — FP, IM, Peds, OB/GYN — at our not-for-profit clinic. Challenging, rewarding practice, but with reasonable life-style, in recently remodeled facility. Teaching opportunities. Competitive salary, excellent benefits package. Contact Rebecca Wiese, M.D., 428 Western Avenue, Davenport, Iowa 52806, 319/322-7899.

**INTERNIST/OB-GYN/FAMILY PRACTICE** — 1 position is available July, 1990. Accredited ambulatory care facility provides medical services to student clientele. Full-time, 11-month position, competitive salary/benefit package and 40-hour week. Qualifications: M.D./D.O. degree, ability to obtain Illinois license, current DEA registration and Board Eligible/Certified. Search continued until position filled. Contact Glenn Weiss, M.D., Medical Director, Student Health Service, Illinois State University, Normal, Illinois 61761; 309/438-8655. Women and minorities are encouraged to apply. Affirmative Action/Equal Opportunity Employer.

**ANESTHESIOLOGIST** — Des Moines, Iowa. Hospital-based opportunity at a 118-bed Charter Medical Corporation facility. Tremendous growth potential. State-of-the-art anesthesia equipment in 4 ORs (No OB). Staff will grow as we grow. Income guarantee, service director stipend, paid interview and redecoration assistance. Shared call arrangements and time off. Please send your CV to Mary Jane Neswold, Charter Community Hospital, 48th and Franklin Avenue, Des Moines, Iowa 50310 or call 515/271-6228.

**OSCEOLA, IOWA** — Weekend coverage available in emergency department of 48-bed hospital. Competitive hourly rate and malpractice insurance provided. Contact Emergency Consultants, Inc., 2240 South Airport Road, Room 43, Traverse City, Michigan 49684; 1-800/253-1795 or in Michigan 1-800/632-3496.

**IOWA CITY AND CEDAR RAPIDS** — Positions are available for full or part-time physicians in our outpatient family practice offices. No weekends. No call. Income guaranteed. Excellent opportunities available in these ideal locations! Contact Jill Buschmann, Medicenter West, 2215 Westdale Drive, SW, Cedar Rapids, Iowa 52404. Phone 319/396-2000.

**McCRARY-ROST CLINIC, P.C.** — Seeking 2 family physicians, one for the Gowrie office and one for the Lake City office. The group includes 9 family physicians, 2 general surgeons and one general internist in an environment to practice quality medicine balanced with a high quality of life. Call every tenth night with adequate time off for family and other interests. For more information contact Ed Maahs, Administrator or D. L. Christensen at 800-262-6230.

**NATIONWIDE PRACTICE OPPORTUNITIES** — Excellent opportunities for BC/BE physicians, all specialties. Excellent compensation, choice locations, numerous benefits. Many hospitals, multispecialty clinics, buy-in options available. Mail your CV or call Roth Young/Minneapolis, 4530 West 77th Street, Minneapolis, Minnesota 55435, 612/831-6655.

**EMERGENCY PHYSICIAN** — Needed in Des Moines, Iowa, BE/BP in EM or primary care specialty, ACLS/ATLS, compensation negotiable based on training and experience. Send CV to L.J. Baker, D.O., Medical Director, 8049 Cobblestone, Urbandale, Iowa 50322.

**FAMILY PHYSICIAN** — For assistant director position in Cedar Rapids Family Practice Residency, Cedar Rapids, Iowa. Interest in obstetrics required; writing or research is encouraged with adequate time and support available. Full range of faculty responsibilities including clinical teaching, patient care and administration; a cooperative approach to decision-making and planning. Ideal candidate will be family practice residency trained and ABFP certified/eligible. Residency jointly sponsored by 2 community hospitals with 900 beds, 25 residents and no competing residencies. Strong philosophical and financial support from hospitals and medical community. Fully accredited by ACGME, operational since 1971. Excellent salary and benefits; creative and challenging environment. Send inquires to Curtis L. Reynolds, III, M.D., Director, Cedar Rapids Medical Education Program, 1026 "A" Avenue NE, Cedar Rapids, Iowa 52402.

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**SOUTHEASTERN OKLAHOMA** — Expanding 20-physician multispecialty group seeking BC/BE physicians: internal medicine, otolaryngology, cardiology, orthopedics, urology, neurology, hematology/oncology, pulmonology, family practice and dermatology. First year guaranteed salary with incentive production, excellent benefits, occurrence type malpractice insurance. Drawing area of 135,000 with modern, 200-bed hospital. Family oriented community, lakes and mountains. Send CV to Deborah Dale, Recruiting Coordinator, The McAlester Clinic, Inc., P.O. Box 908, McAlester, Oklahoma 74502; 918/426-0240.

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**EMERGENCY PHYSICIAN** — Full-time position available immediately for qualified emergency physician in MHMC ED Des Moines, Iowa. Competitive salary, one month paid vacation and opportunity for advancement. For further information contact Dr. Kenneth P. Schultheis or Dr. Leon Berkley, Emergency Physicians Service, P.C., Mercy Hospital Medical Center, Sixth and University, Des Moines, Iowa 50314. Phone 515/247-4445.

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**FAMILY PRACTICE PHYSICIANS WANTED** — To join new family practice clinic being built in Washington, Iowa. Strong emphasis in OB preferred. Opportunities galore! Excellent starting salary and paid benefits. After first year, partnership available. Enjoy the support from good, clean community of 7,000. Excellent schools, YMCA/YWCA, hospital, movies and much more. Only 30 miles from Iowa City and the Hawkeyes! For more information, please contact Dr. Matthew L. Sojka at 319/653-6601 or 319/653-4117.

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**POSITION WANTED** — Board certified family physician seeks association with independent group practice in Des Moines area. Contact IOWA MEDICINE, Box 1591, 1001 Grand Avenue, West Des Moines, Iowa 50265.

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**IOWA CITY, IOWA** — Seeking family physician to join 4 person group in private practice as our fifth partner retires. Excellent university community with opportunities to pursue many interests including fine arts and athletics. Income guarantee with incentive; option to become partner available after first year. For further information please send CV to IOWA MEDICINE, Box 1590, 1001 Grand Avenue, West Des Moines, Iowa 50265.

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**FAMILY PRACTICE** — BE/BC family practitioners to join our busy office in Glenwood, Iowa. Share call and receive support of the long established progressive Cogley Medical Associates, P.C. multispecialty group practice located in southwestern Iowa. Glenwood is a community of 6,000 located just 20 miles south of Council Bluffs. Great community, good schools yet close to metro area. Guaranteed first year salary, plus incentive with full range of benefits. Contact Richard Lehigh, Administrator, Cogley Medical Associates, P.C., 715 Harmony, Council Bluffs, Iowa 51503 or call collect 712/328-1801.

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**FAMILY PRACTICE** — BE/BC family practitioners to join 6 physician FP department in a long established progressive multispecialty group practice in southwestern Iowa. Support of 10 associated or affiliated surgical and medical specialties, yet free to practice full range of family medicine. Enjoy an outstanding medium-sized community quality of life within minutes of Omaha. Guaranteed first year salary, plus incentive with full range of benefits. Contact Richard Lehigh, Administrator, Cogley Medical Associates, P.C., 715 Harmony, Council Bluffs, Iowa 51503 or call collect 712/328-1801.

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**ESTABLISHED** — Rapidly growing 20 M.D. multispecialty group in historic midwest city seeks additional family physician, IM/gastro, OB or orthoped. Signing, bonus, outstanding income potential, low buy-in, lovely life-style, Triple A school system, 4 year college and many recreational activities. Contact, in confidence, Cheryl Broderick, 508/688-9063 collect. E. G. Todd is a physician search firm with opportunities nationwide in all specialties. All inquiries confidential. Fees paid by clients, not physician candidates.

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**FAMILY PHYSICIAN, MARSHALLTOWN, IOWA** — Six physician family practice group seeking additional BE/BC associate. Excellent guaranteed salary plus incentive and insurance with liberal vacation policy. Excellent community hospital with CT, MRI, Color Echo and invasive radiology. Contact James R. Burke, M.D., 112 East Linn, Marshalltown, Iowa 50158 or call 515/752-5469.

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**GUTTENBERG, IOWA** — Scenic Mississippi River community in northeast Iowa needs BC/BE partner for busy 3 person family practice group. Competitive compensation package. Full day off each week, 6 weeks vacation. Group shares OB. Excellent surgeon in town, thriving hospital, modern clinic. Call Andrew Smith, M.D. collect at 319/252-2141 or 252-2232 after 5 p.m. Family Medicine Associates, Guttenberg, Iowa 52052.

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**FAST BREAK TO YOUR FUTURE IN EMERGENCY MEDICINE** — If you are considering a career move and are emergency medicine residency trained and/or certified in family practice or other primary care specialties, contact us because we are interested in you. We are Emergency Medical Services, Inc., Kansas City, Missouri. Good things come in our package: challenging practice, advancement opportunities, scheduling flexibility, paid professional liability insurance and excellent compensation. You will love Kansas City: *Fortune* magazine does! *Fortune* ranked Kansas City the third "best" city in the nation for business. This may be one of the best kept secrets in America, because we have been successful and prosperous since 1975. We have opportunities available in the Kansas City metropolitan area and northwestern Missouri. For more information about a secure, permanent emergency medicine practice, with a spectacular future, contact Emergency Medical Services, Inc., 3101 Broadway, Suite 1000, Kansas City, Missouri 64111. Ask for H. L. Plost, M.H.A., 1-800/821-5147.

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**PSYCHIATRISTS** — Immediate openings for BE/BC psychiatrist to join staff adult and child in a modern, 98-bed, psychiatric addition to a general hospital complex. This opportunity offers a stimulating mix of clinical and teaching activities. Faculty appointment with University of Iowa is possible. Quality of life is high in this clean, medium-sized city. \$92,000-112,000 plus a generous benefit package. For further information write James Pullen, M.D., Department of Psychiatry, Broadlawn Medical Center, Des Moines, Iowa or call 515/282-2462. EOE.

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(Continued next page)



**IOWA PEDIATRICIAN** — To join busy pediatric department in young progressive multispecialty group. Enjoy outstanding, progressive medium-sized community quality of life within minutes of downtown Omaha. Competitive guaranteed salary and fringe benefits, plus incentives with full corporate membership after one year. Contact Richard Lehigh, Administrator, Cogley Medical Associates, P.C., Council Bluffs, Iowa 51501. 712/328-1801.

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**FAMILY PRACTICE PHYSICIANS** — Family practice physicians to join established clinic in progressive, family-oriented community of central Minnesota lakes area, good hunting and fishing, excellent educational system. Guaranteed salary and competitive benefit package. Contact Dr. Lewis Struthers or Mr. Erik Malchow at Parkers Prairie District Hospital, Parkers Prairie, Minnesota 56361 or call 218/338-4011.

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**EMERGENCY PHYSICIAN** — Need BE/BP in EM or primary care specialty to staff medium load E.D. located in Council Bluffs, Iowa, just across from the city of Omaha. Excellent back up. Compensation negotiable based upon training/experience. Write to Bluffs Emergency Care Services, P.C., 933 E. Pierce Street, Council Bluffs, Iowa 51503; 712/328-6111.

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**ESTERVILLE, IOWA** — Seeking physicians in primary care specialties to provide weekend coverage at low volume emergency department in northwestern Iowa. Excellent compensation and paid malpractice insurance. Contact Emergency Consultants, Inc., 2240 South Airport Road, Room 43, Traverse City, Michigan 49684; 1-800/253-1795 or in Michigan 1-800/632-3496.

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**FOR SALE** — 35 cm flexible sigmoidoscope with light source. \$400.00. James R. Young, M.D. 319/277-6302.

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**SOUTHWESTERN IOWA** — Small, progressive hospital, in southwestern Iowa, seeking third family practice physician. First-year minimum income guarantee \$70,000, plus benefits. Omaha, Nebraska within hours drive. Specialists from Omaha provide clinics/backup. Call Wanda Parker, 800/221-4762 or collect 212/599-6200. E.G. Todd Associates, 535 Fifth Avenue, Suite 1100, New York, New York 10017.

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**OSAGE, IOWA** — Seeking family practice physician who desires OB in their practice (40-60/year). Population base of 12,000 people. No competition within county. Very competitive compensation package including a pension and profit sharing, malpractice insurance, health insurance, disability insurance. For further information, please call the Osage Medical Group at 515/732-3753 or 1-800/392-6664 within Iowa.

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**MINNEAPOLIS/ST. PAUL AND SURROUNDING COMMUNITIES** — Offer practice opportunities for specialists in cardiology, dermatology, geriatrics, internal medicine, neurology, obstetrics and gynecology, oncology, ophthalmology, orthopedic surgery, pediatrics, rheumatology, surgery and locums. Contact Jerry Hess, LifeSpan Health Care Services, 800 East 28th Street, Minneapolis, Minnesota 55407; 612/863-4193.

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**FAMILY PRACTICE** — Family practice physician needed to join an established 14-physician state of the art clinic in a ranching community in South Dakota. Competitive salary guaranteed, plus generous tuition reimbursement-housing-transportation bonuses offered. Malpractice insurance covered. Limited call. Flexible schedule. Outdoor recreation abounds, including hunting, fishing, boating, skiing and golfing. Cultural opportunities: Allied Concert Series programs. Send resume or inquiries to Helen S. Lindquist, Administrator, Five Counties Hospital and Nursing Home, P.O. Box 479, Lemmon, South Dakota 57638. Telephone 605/374-3871.

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**ILLINOIS** — Near Springfield. Another OB/GYN needed to join group. 36,000 population, 650 deliveries, 160-bed hospital with group office on campus. Sound economy, recreational lake, excellent schools. Salary, office and all benefits, partnership. Call Dr. Walter Smith: 800/221-4762 or collect 212/599-6200.

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**SMALL HOSPITAL** — 45 minutes west of Minneapolis, has noted geriatric program. First-year minimum salary of \$50,000, plus 37% adjusted revenues, 4 weeks vacation, 2 weeks CME, 401(k) pension plan, malpractice. Lakeside community. Call Wanda Parker at 800/221-4762 or collect 212/599-6200.

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**PRIMARY CARE PHYSICIAN** — Marshfield Clinic is seeking a primary care physician to join its expanding 7-member emergency medicine department. Emergency medicine, urgent and ambulatory care, plus supervision and training of ER staff contribute to a very stimulating practice environment. More than 26,000 ER visits and 13,000 ambulatory care visits annually. Specialists representing all branches of medicine and surgery provide support care and services. Marshfield Clinic is a private group practice consisting of 350 physicians and is physically adjacent to Saint Joseph's Hospital, a 525-bed acute care teaching facility. Send curriculum vitae to John P. Folz, Association Director, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, Wisconsin 54449 or call collect at 715/387-5181.

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**GENERAL INTERNIST** — Marshfield Clinic, a multispecialty group practice with 350 physicians, is seeking BE/BC general internists to join its 30-member section in Marshfield and 3 expanding regional centers in northwestern and north central Wisconsin. An Internal Medicine Residency Program, University of Wisconsin Medical School affiliation and Medical Research Foundation contribute to a very stimulating practice environment. Positions offer strong economic stability combined with exceptional recreational, cultural and educational opportunities. Starting salaries up to \$92,100 with salary in 2 years up to \$116,400. Fringe benefit package is outstanding. Send C.V. to David L. Draves, Director Regional Development, 1000 North Oak Avenue, Marshfield, Wisconsin 54449 or call collect at 715/387-5376.

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**FAMILY PRACTICE** — Marshfield Clinic, a multispecialty group practice with nearly 350 physicians, is seeking BE/BC family practitioners to join expanding regional centers. Practice opportunities range in size from single specialty groups of 3 to multispecialty groups of 25. Positions available in 6 locations: 2 in northwestern Wisconsin within 70 and 90 miles of Minneapolis; 2 in northcentral Wisconsin within 80 and 90 miles of Lake Superior; and 2 in central Wisconsin within 25 and 35 miles of Marshfield. Full specialty consultation readily available. Positions offer strong economic stability combined with exceptional recreational, cultural and educational opportunities. Starting salary up to \$92,160 with salary in 2 years up to \$116,400. Fringe benefit package outstanding. Send CV and references to David L. Draves, Director, Regional Development, 1000 North Oak Avenue, Marshfield, Wisconsin 54449 or call collect at 715/387-5376.

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**UROLOGIST** — Private practice urologic group seeks a BC/BE urologist for a busy, well-established practice. Iowa City, population 60,000, is the home of the University of Iowa, which provides sporting, cultural and educational benefits. Send CV and references to Mary Ruth, Administrator, Urologic Associates of Iowa City, P.C., 2407 Towncrest Drive, Iowa City, Iowa 52240.

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**INTERNIST** — Tremendous practice opportunity is available for one to 2 BC/BE internal medicine specialists in southeastern Wisconsin community of 18,000. Watertown, located within a one-hour drive of both Madison and Milwaukee, has a 103-bed, JCAHO accredited modern hospital. Over 30 active medical staff members for service area of 30,000+. Presently one internist on staff. Financial support and office space is available. Please call Leo Bargielski, President, Watertown Memorial Hospital or Ed Hoy, M.D., 125 Hospital Drive, Watertown, Wisconsin 53094; 414/261-4210.

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**GENERAL INTERNIST WITH PSYCHIATRY INTEREST** — Marshfield Clinic multispecialty group practice with over 300 physicians is seeking a medical director for the inpatient psychiatry unit. A BC/BE internist with psychiatry experience is preferred. The medical directorship of the psychiatry unit is half time and the applicant may develop the other portion of practice to meet his or her practice interest. This could include a private practice or noncontinuity of care practice such as walk-in clinic, preop evaluation or employee health clinic. Starting salary is negotiable but very competitive and the fringe benefit package is outstanding. Send CV and references to David L. Draves, 1000 North Oak Avenue, Marshfield, Wisconsin 54449 or call collect at 715/387-5376.

**GENERAL INTERNIST WITH INTEREST IN PREOPERATIVE EVALUATIONS** — Marshfield Clinic multispecialty group with over 300 physicians is seeking a BE/BC general internist to staff a Preoperative Evaluation Clinic. There is no hospital practice, night or weekend call. This is half time position and the applicant may develop the other portion of practice to meet his or her practice interests which could include staffing a walk-in clinic, employee health clinic or development of a private practice. Salary is negotiable but very competitive depending on the type of practice developed and the fringe benefit package is outstanding. Send references and CV to David L. Draves, 1000 North Oak Avenue, Marshfield, Wisconsin 54449 or call collect at 715/387-5376.

## ANOTHER IMS MEMBER SERVICE

Physicians who are members of the Iowa Medical Society may advertise in the classified section for 3 months without charge.

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We are seeking spouses of Iowa physicians to join a vital, progressive, accomplished group — the Iowa Medical Society Auxiliary.

**QUALIFICATIONS AND SKILLS:** Enthusiasm and involvement

**BENEFITS:** Too numerous to list

Send your dues (\$30 payable to IMS Auxiliary) TODAY to your county auxiliary treasurer or district councilor. In return, you will become a person who is well-informed about Iowa's medical issues.

For further information on the IMS Auxiliary, contact Sandy Nichols, 515/223-1401 or toll free 1/800-747-3070.

**We need you!**

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**Description:** Yohimbine is a 3a-15a-20B-17a-hydroxy Yohimbine-16a-carboxylic acid methyl ester. The alkaloid is found in Rubiaceae and related trees. Also in Rauwolfia Serpentina (L) Benth. Yohimbine is an indolalkylamine alkaloid with chemical similarity to reserpine. It is a crystalline powder, odorless. Each compressed tablet contains (1/12 gr.) 5.4 mg of Yohimbine Hydrochloride.

**Action:** Yohimbine blocks presynaptic alpha-2 adrenergic receptors. Its action on peripheral blood vessels resembles that of reserpine, though it is weaker and of short duration. Yohimbine's peripheral autonomic nervous system effect is to increase parasympathetic (cholinergic) and decrease sympathetic (adrenergic) activity. It is to be noted that in male sexual performance, erection is linked to cholinergic activity and to alpha-2 adrenergic blockade which may theoretically result in increased penile inflow, decreased penile outflow or both.

Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage although they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalamic centers and release of posterior pituitary hormone.

Reportedly, Yohimbine exerts no significant influence on cardiac stimulation and other effects mediated by B-adrenergic receptors, its effect on blood pressure, if any, would be to lower it; however no adequate studies are at hand to quantitate this effect in terms of Yohimbine dosage.

**Indications:** Yocon® is indicated as a sympatholytic and mydriatic. It may have activity as an aphrodisiac.

**Contraindications:** Renal diseases, and patient's sensitive to the drug. In view of the limited and inadequate information at hand, no precise tabulation can be offered of additional contraindications.

**Warning:** Generally, this drug is not proposed for use in females and certainly must not be used during pregnancy. Neither is this drug proposed for use in pediatric, geriatric or cardio-renal patients with gastric or duodenal ulcer history. Nor should it be used in conjunction with mood-modifying drugs such as antidepressants, or in psychiatric patients in general.

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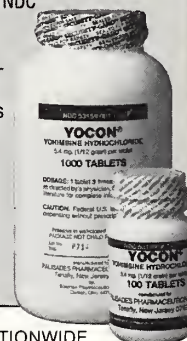
**Dosage and Administration:** Experimental dosage reported in treatment of erectile impotence.<sup>1,3,4</sup> 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.<sup>3</sup>

**How Supplied:** Oral tablets of Yocon® 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

#### References:

1. A. Morales et al., New England Journal of Medicine: 1221, November 12, 1981.
2. Goodman, Gilman — The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

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# The Art of Medicine

*Editor's Note: Guest columnist for this month is Paul Seebohm, M.D., Consultant to the Dean, U. of I. College of Medicine.*

AS LONG AS I HAVE BEEN in medicine, there has been a debate over whether medicine is more of an art or a science. Over 50 years ago when my association with medicine began, it was evident there was a great deal of art associated with the practice of medicine. Although science had contributed to the treatment of diabetes with insulin, pneumococcal pneumonia with type specific anti-sera and pernicious anemia with liver, much of medicine was practiced with the eyes, ears, hands and stethoscope. Not to mention the mind which integrated history and physical findings into a diagnosis and in most cases a prescription of medicinals whose effect depended more on how they were prescribed than on their pharmacologic properties.

I can still see our attendings recommending prescriptions for IQ&S (iron, quinine and strychnine) for the patients today we label "the worried well." The reassurance associated with handing the prescription to the patient with such words as "I am sure it will help you," the alcohol content and bitter taste made patients report they were improved as they were told they should be.

Surgery was more definitively effective in the treatment of appendicitis, cholecystitis, empyemas, fractures and lacerations, but wandered from rational indications in the performance of tonsillectomies and hysterectomies.

If we can accept Webster's simplest definition of science as being systematized knowledge in reference to discovery or understanding of truth and of art as being knowledge as applied and made efficient by skill, then the

argument over whether medicine is an art or a science is a futile one. It is evident that as scientific knowledge grows, the physician's skill to apply it must also evolve, and with the explosion of scientific knowledge in recent decades, the art of medicine has been under stress to keep up. The physician not only needs to understand the science of medicine but must develop the skills to use it. This has placed new demands on the art of medicine. There has had to be development of new technical skills in many procedural areas, new verbal skills in counseling and psychiatric areas and much reinforcement of the traditional intellectual skills used in the appropriate application of new diagnostic and therapeutic modalities.

"Working up" the patient with the eyes, ears, hands and stethoscope is still the basic art of medicine. In fact, the advances of science have strengthened its importance in directing the physician through the maze of costly tests, imaging and drugs available for patient care. Management skills have taken on new importance in medical practice and with the growing evidence that the best physicians tend to be the most efficient in the use of resources, one cannot afford to lose this fundamental art amid the razzle dazzle of modern technological medicine.

With all the scientific advances, the art of their application is still the keystone of the physician's mastery of modern medical practice.

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April 1990

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Iowa Medicine





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**Contraindications:** VASOTEC® (Enalapril Maleate, MSD) is contraindicated in patients who are hypersensitive to this product and in patients with a history of angioedema related to previous treatment with an ACE inhibitor.

**Warnings:** **Angioedema:** Angioedema of the face, extremities, lips, tongue, glottis, and/or larynx has been reported in patients treated with ACE inhibitors, including VASOTEC. In such cases, VASOTEC should be promptly discontinued and the patient carefully observed until the swelling disappears. In instances where swelling has been confined to the face and lips, the condition has generally resolved without treatment, although antihistamines have been useful in relieving symptoms. Angioedema associated with laryngeal edema may be fatal. **Where there is involvement of the tongue, glottis, or larynx likely to cause airway obstruction, appropriate therapy, e.g., subcutaneous epinephrine solution 1:1000 (0.3 mL to 0.5 mL), should be promptly administered.** (See ADVERSE REACTIONS.)

**Hypotension:** Excessive hypotension is rare in uncomplicated hypertensive patients treated with VASOTEC alone. Patients with heart failure given VASOTEC commonly have some reduction in blood pressure, especially with the first dose, but discontinuation of therapy for continuing symptomatic hypotension usually is not necessary when dosing instructions are followed, caution should be observed when initiating therapy. (See DOSAGE AND ADMINISTRATION.) Patients at risk for excessive hypotension, sometimes associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death, include those with the following conditions or characteristics: heart failure, hypotension, high-dose diuretic therapy, recent intensive diuresis or increase in diuretic dose, renal dialysis, or severe volume and/or salt depletion of any etiology. It may be advisable to eliminate the diuretic (except in patients with heart failure), reduce the diuretic dose, or increase salt intake cautiously before initiating therapy with VASOTEC in patients at risk for excessive hypotension who are able to tolerate such adjustments. (See PRECAUTIONS, Drug Interactions and ADVERSE REACTIONS.) In patients at risk for excessive hypotension, therapy should be started under very close medical supervision and such patients should be followed closely for the first two weeks of treatment and whenever the dose of enalapril and/or diuretic is increased. Similar considerations may apply to patients with ischemic heart disease or cardiovascular disease in whom an excessive fall in blood pressure could result in a myocardial infarction or cerebrovascular accident. If excessive hypotension occurs, the patient should be placed in the supine position and, if necessary, receive an intravenous infusion of normal saline. A transient hypotensive response is not a contraindication to further doses of VASOTEC, which usually can be given without difficulty once the blood pressure has stabilized. If symptomatic hypotension develops, a dose reduction or discontinuation of VASOTEC or concomitant diuretic may be necessary.

**Neutropenia/Agranulocytosis:** Another ACE inhibitor, captopril, has been shown to cause agranulocytosis and bone marrow depression, rarely in uncomplicated patients but more frequently in patients with renal impairment, especially if they also have a collagen vascular disease. Available data from clinical trials of enalapril are insufficient to show that enalapril does not cause agranulocytosis at similar rates. Foreign marketing experience has revealed several cases of neutropenia or agranulocytosis in which a causal relationship to enalapril cannot be excluded. Periodic monitoring of white blood cell counts in patients with collagen vascular disease and renal disease should be considered.

**Precautions:** **General:** **Impaired Renal Function.** As a consequence of inhibiting the renin-angiotensin-aldosterone system, changes in renal function may be anticipated in susceptible individuals. In patients with severe heart failure whose renal function may depend on the activity of the renin-angiotensin-aldosterone system, treatment with ACE inhibitors, including VASOTEC, may be associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death.

In clinical studies in hypertensive patients with unilateral or bilateral renal artery stenosis, increases in blood urea nitrogen and serum creatinine were observed in 20% of patients. These increases were almost always reversible upon discontinuation of enalapril and/or diuretic therapy. In such patients, renal function should be monitored during the first few weeks of therapy.

Some patients with hypertension or heart failure with no apparent preexisting renal vascular disease have developed increases in blood urea and serum creatinine, usually minor and transient, especially when VASOTEC has been given concomitantly with a diuretic. This is more likely to occur in patients with preexisting renal impairment. Dosage reduction and/or discontinuation of the diuretic and/or VASOTEC may be required.

**Evaluation of patients with hypertension or heart failure should always include assessment of renal function.** (See DOSAGE AND ADMINISTRATION.)

**Hypokalemia:** Elevated serum potassium ( $>5.7$  mEq/L) was observed in approximately 1% of hypertensive patients in clinical trials. In most cases these were isolated values which resolved despite continued therapy. Hypokalemia was a cause of discontinuation of therapy in 0.28% of hypertensive patients. In clinical trials in heart failure, hypokalemia was observed in 3.8% of patients, but was not a cause for discontinuation.

Risk factors for the development of hypokalemia include renal insufficiency, diabetes mellitus, and the concomitant use of potassium-sparing diuretics, potassium supplements, and/or potassium-containing salt substitutes, which should be used cautiously, if at all, with VASOTEC. (See Drug Interactions.)

**Surgery/Anesthesia:** In patients undergoing major surgery or during anesthesia with agents that produce hypotension, enalapril may block angiotensin II formation secondary to compensatory renin release. If hypotension occurs and is considered to be due to this mechanism, it can be corrected by volume expansion.

#### Information for Patients:

**Angioedema:** Angioedema, including laryngeal edema, may occur especially following the first dose of enalapril. Patients should be so advised and told to report immediately any signs or symptoms suggesting angioedema (swelling of face, extremities, eyes, lips, tongue, difficulty in swallowing or breathing) and to take no more drug until they have consulted with the prescribing physician.

**Hypotension:** Patients should be cautioned to report lightheadedness, especially during the first few days of therapy. If actual syncope occurs, the patients should be told to discontinue the drug until they have consulted with the prescribing physician.

All patients should be cautioned that excessive perspiration and dehydration may lead to an excessive fall in blood pressure because of reduction in fluid volume. Other causes of volume depletion such as vomiting or diarrhea may also lead to a fall in blood pressure; patients should be advised to consult with the physician.

**Hypokalemia:** Patients should be told not to use salt substitutes containing potassium without consulting their physician.

**Neutropenia:** Patients should be told to report promptly any indication of infection (e.g., sore throat, fever) which may be a sign of neutropenia.

**NOTE:** As with any other drugs, certain advice to patients being treated with enalapril is warranted. This information is intended to aid in the safe and effective use of this medication. It is not a disclosure of all possible adverse or intended effects.

#### Drug Interactions:

**Hypotension: Patients on Diuretic Therapy:** Patients on diuretics and especially those in whom diuretic therapy was recently instituted may occasionally experience an excessive reduction of blood pressure after initiation of therapy with enalapril. The possibility of hypotensive effects with enalapril can be minimized by either discontinuing the diuretic or increasing the salt intake prior to initiation of treatment with enalapril. If it is necessary to continue the diuretic, provide close medical supervision after the initial dose for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and DOSAGE AND ADMINISTRATION.)

**Agents Causing Renin Release:** The antihypertensive effect of VASOTEC is augmented by antihypertensive agents that cause renin release (e.g., diuretics).

**Other Cardiovascular Agents:** VASOTEC has been used concomitantly with beta-adrenergic blocking agents, methylglucoside, nitrates, calcium blocking agents, hydralazine, prazosin, and digoxin without evidence of clinically significant adverse interactions.

**Agents Increasing Serum Potassium:** VASOTEC attenuates potassium loss caused by thiazide-type diuretics. Potassium-sparing diuretics (e.g., spironolactone, triamterene, or amiloride), potassium supplements, or potassium-containing salt substitutes may lead to significant increases in serum potassium. Therefore, if concomitant use of these agents is indicated because of demonstrated hypokalemia, they should be used with caution and with frequent monitoring of serum potassium. Potassium-sparing agents should generally not be used in patients with heart failure receiving VASOTEC.

**Lithium:** Lithium toxicity has been reported in patients receiving lithium concomitantly with drugs which cause elimination of sodium, including ACE inhibitors. A few cases of lithium toxicity have been reported in patients receiving concomitant VASOTEC and lithium and were reversible upon discontinuation of both drugs. It is recommended that serum lithium levels be monitored frequently if enalapril is administered concomitantly with lithium.

**Pregnancy—Category C:** There was no fetotoxicity or teratogenicity in rats treated with up to 200 mg/kg/day of enalapril (333 times the maximum human dose). Fetotoxicity, expressed as a decrease in average fetal weight, occurred in rats given 1200 mg/kg/day of enalapril but did not occur when these animals were supplemented with saline. Enalapril was not fetotoxic in rabbits. However, maternal and fetal toxicity occurred in some rabbits at doses of 1 mg/kg/day or more. Saline supplementation prevented the maternal and fetal toxicity seen at doses of 3 and 10 mg/kg/day, but not at 30 mg/kg/day (50 times the maximum human dose).

Radiolabelled enalapril was found to cross the placenta following administration of labeled enalapril to pregnant hamsters.

There are no adequate and well-controlled studies of enalapril in pregnant women. However, data are available that show enalapril crosses the human placenta. Because the risk of fetal toxicity with the use of ACE inhibitors has not

been clearly defined, VASOTEC® (Enalapril Maleate, MSO) should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Postmarketing experience with all ACE inhibitors thus far suggests the following with regard to pregnancy outcome. Inadvertent exposure limited to the first trimester of pregnancy has not been reported to affect fetal outcome adversely. Fetal exposure during the second and third trimesters of pregnancy has been associated with fetal and neonatal morbidity and mortality.

When ACE inhibitors are used during the later stages of pregnancy, there have been reports of hypotension and decreased renal perfusion in the newborn. Oligohydramnios in the mother has also been reported, presumably representing decreased renal function in the fetus. Infants exposed *in utero* to ACE inhibitors should be closely observed for hypotension, oliguria, and hyperkalemia. If oliguria occurs, attention should be directed toward support of blood pressure and renal perfusion with the administration of fluids and pressors as appropriate. Problems associated with prematurity such as patent ductus arteriosus have occurred in association with maternal use of ACE inhibitors, but it is not clear whether they are related to ACE inhibition, maternal hypertension, or the underlying prematurity.

**Nursing Mothers:** Milk in lactating rats contains radioactivity following administration of  $^{14}$ C enalapril maleate. It is not known whether this drug is secreted in human milk. Because many drugs are secreted in human milk, caution should be exercised when VASOTEC is given to a nursing mother.

**Pediatric Use:** Safety and effectiveness in children have not been established.

**Adverse Reactions:** VASOTEC has been evaluated for safety in more than 10,000 patients, including over 1000 patients treated for one year or more. VASOTEC has been found to be generally well tolerated in controlled clinical trials involving 2987 patients.

**HYPERTENSION:** The most frequent clinical adverse experiences in controlled trials were: headache (5.2%), dizziness (4.3%), and fatigue (3%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in controlled clinical trials were: diarrhea (1.4%), nausea (1.4%), rash (1.4%), cough (1.3%), orthostatic effects (1.2%), and asthenia (1.1%).

**HEART FAILURE:** The most frequent clinical adverse experiences in both controlled and uncontrolled trials were: dizziness (1.9%), hypotension (6.7%), orthostatic effects (2.2%), syncope (2.2%), cough (2.2%), chest pain (2.1%), and diarrhea (2.1%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in both controlled and uncontrolled clinical trials were: fatigue (1.8%), headache (1.8%), abdominal pain (1.6%), asthenia (1.6%), orthostatic hypotension (1.6%), vertigo (1.6%), angina pectoris (1.5%), nausea (1.3%), vomiting (1.3%), bronchitis (1.3%), dyspnea (1.3%), urinary tract infection (1.3%), rash (1.3%), and myocardial infarction (1.2%).

Other serious clinical adverse experiences occurring since the drug was marketed or adverse experiences occurring in 0.5% to 1% of patients with hypertension or heart failure in clinical trials in order of decreasing severity within each category:

**Cardiovascular:** Cardiac arrest, myocardial infarction or cerebrovascular accident, possibly secondary to excessive hypotension in high-risk patients (see WARNINGS, Hypotension); pulmonary embolism and infarction; pulmonary edema, rhythm disturbances; atrial fibrillation; palpitation.

**Digestive:** Ileus, pancreatitis, hepatitis (hepatocellular or cholestatic jaundice), melena, anorexia, dyspepsia, constipation, glossitis, stomatitis, dry mouth.

**Musculoskeletal:** Muscle cramps.

**Nervous/Psychiatric:** Depression, confusion, ataxia, somnolence, insomnia, nervousness, paresthesia.

**Urogenital:** Renal failure, oliguria, renal dysfunction (see PRECAUTIONS and DOSAGE AND ADMINISTRATION).

**Respiratory:** Bronchospasm, rhinorrhea, sore throat and hoarseness, asthma, upper respiratory infection.

**Skin:** Exfoliative dermatitis, toxic epidermal necrolysis, Stevens-Johnson syndrome, herpes zoster, erythema multiforme, urticaria, pruritus, alopecia, flushing, hyperhidrosis.

**Special Senses:** Blurred vision, taste alteration, anosmia, tinnitus, conjunctivitis, dry eyes, tearing.

A symptom complex has been reported which may include a positive ANA, an elevated erythrocyte sedimentation rate, arthralgias/arthritis, myalgias, fever, serositis, vasculitis, leukocytosis, eosinophilia, photosensitivity, rash, and other dermatologic manifestations.

**Angioedema:** Angioedema has been reported in patients receiving VASOTEC (0.2%). Angioedema associated with laryngeal edema may be fatal. If angioedema of the face, extremities, lips, tongue, glottis, and/or larynx occurs, treatment with VASOTEC should be discontinued and appropriate therapy instituted immediately. (See WARNINGS.)

**Hypotension:** In the hypertensive patients, hypotension occurred in 0.9% and syncope occurred in 0.5% of patients following the initial dose or during extended therapy. Hypotension or syncope was a cause for discontinuation of therapy in 0.1% of hypertensive patients. In heart failure patients, hypotension occurred in 6.7% and syncope occurred in 2.2% of patients. Hypotension or syncope was a cause for discontinuation of therapy in 1.9% of patients with heart failure. (See WARNINGS.)

#### Clinical Laboratory Test Findings:

**Serum Electrolytes:** Hypokalemia (see PRECAUTIONS), hypomagnesemia.

**Creatinine, Blood Urea Nitrogen:** In controlled clinical trials, minor increases in blood urea nitrogen and serum creatinine, reversible upon discontinuation of therapy, were observed in about 0.2% of patients with essential hypertension treated with VASOTEC alone. Increases are more likely to occur in patients receiving concomitant diuretics or in patients with renal artery stenosis. (See PRECAUTIONS.) In patients with heart failure who were also receiving diuretics with or without digitalis, increases in blood urea nitrogen or serum creatinine, usually reversible upon discontinuation of VASOTEC and/or other concomitant diuretic therapy, were observed in about 11% of patients. Increases in blood urea nitrogen or creatinine were a cause for discontinuation in 1.2% of patients.

**Hemoglobin and Hematocrit:** Small decreases in hemoglobin and hematocrit (mean decreases of approximately 0.3 g/dL and 1.0 vol %, respectively) occur frequently in either hypertension or heart failure patients treated with VASOTEC but are rarely of clinical importance unless another cause of anemia coexists. In clinical trials, less than 0.1% of patients discontinued therapy due to anemia.

**Other (Causal Relationship Unknown):** In marketing experience, rare cases of neutropenia, thrombocytopenia, and bone marrow depression have been reported. A few cases of hemolysis have been reported in patients with G6PD deficiency.

**Liver Function Tests:** Elevations of liver enzymes and/or serum bilirubin have occurred.

**Dosage and Administration:** **Hypertension:** In patients who are currently being treated with a diuretic, symptomatic hypotension occasionally may occur following the initial dose of VASOTEC. The diuretic should, if possible, be discontinued for two to three days before beginning therapy with VASOTEC to reduce the likelihood of hypotension. (See WARNINGS.) If the patient's blood pressure is not controlled with VASOTEC alone, diuretic therapy may be resumed. If the diuretic cannot be discontinued, an initial dose of 2.5 mg should be used under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, Drug Interactions.)

The recommended initial dose in patients not on diuretics is 5 mg once a day. Dosage should be adjusted according to blood pressure response. The usual dosage range is 10 to 40 mg per day administered in a single dose or in two divided doses. In some patients treated once daily, the antihypertensive effect may diminish toward the end of the dosing interval. In such patients, an increase in dosage or twice-daily administration should be considered. If blood pressure is not controlled with VASOTEC alone, a diuretic may be added.

Concomitant administration of VASOTEC with potassium supplements, potassium salt substitutes, or potassium-sparing diuretics may lead to increases of serum potassium (see PRECAUTIONS).

**Dosage Adjustment in Hypertensive Patients with Renal Impairment:** The usual dose of enalapril is recommended for patients with a creatinine clearance  $> 30$  mL/min (serum creatinine of up to approximately 3 mg/dL). For patients with creatinine clearance  $\leq 30$  mL/min (serum creatinine  $\geq 3$  mg/dL), the first dose is 2.5 mg once daily. The dosage may be titrated upward until blood pressure is controlled or to a maximum of 40 mg daily.

**Heart Failure:** VASOTEC is indicated as adjunctive therapy with diuretics and digitalis. The recommended starting dose is 2.5 mg once or twice daily. After the initial dose of VASOTEC, the patient should be observed under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, Drug Interactions.) If possible, the dose of the diuretic should be reduced, which may diminish the likelihood of hypotension. The appearance of hypotension after the initial dose of VASOTEC does not preclude subsequent careful dose titration with the drug, following effective management of the hypotension. The usual therapeutic dosing range for the treatment of heart failure is 5 to 20 mg daily given in two divided doses. The maximum daily dose is 40 mg. Once-daily dosing has been effective in a controlled study, but nearly all patients in this study were given 40 mg, the maximum recommended daily dose, and there has been much more experience with twice-daily dosing. In addition, in a placebo-controlled study which demonstrated reduced mortality in patients with severe heart failure (NYHA Class IV), patients were treated with 2.5 to 40 mg per day of VASOTEC, almost always administered in two divided doses. (See CLINICAL PHARMACOLOGY, Pharmacodynamics and Clinical Effects.) Dosage may be adjusted depending upon clinical or hemodynamic response. (See WARNINGS.)

**Dosage Adjustment in Patients with Heart Failure and Renal Impairment or Hypomagnesemia:** In patients with heart failure who have hypomagnesemia (serum magnesium  $< 1.30$  mEq/L) or with serum creatinine  $> 1.6$  mg/dL, therapy should be initiated at 2.5 mg daily under close medical supervision. (See DOSAGE AND ADMINISTRATION, Heart Failure, WARNINGS, and PRECAUTIONS, Drug Interactions.) The dose may be increased to 2.5 mg b.i.d., then 5 mg b.i.d. and higher as needed, usually at intervals of four days or more, if at the time of dosage adjustment there is not excessive hypotension or significant deterioration of renal function. The maximum daily dose is 40 mg.

For more detailed information, consult your MSD Representative or see Prescribing Information, Merck Sharp & Dohme, Division of Merck & Co., Inc., West Point, PA 19380.

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# IowaMedicine

May 1990

Journal of the Iowa Medical Society

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Volume 80 Number 5

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# In This Issue

## Departments

- 235 President's Privilege
- 254 Clinicopathologic Conference
- 259 The Editor Comments
- 260 Letters to the Editor
- 261 Special Editorial
- 264 CME Notebook
- 267 Biomedical Ethics
- 268 Practice Management
- 271 Iowa Department of Public Health
- 273 New Products and Programs
- 275 About Iowa Physicians
- 282 In the Public Interest

## Special Articles

- 236 **What's New in Pediatrics?**  
*Varicella vaccine, new RDS therapy and improvements in leukemia treatment are only a few of the many developments.*  
**Kathleen Sanders, M.D.; David Wacker, Ph.D.; Kenneth Lombard, M.D.; Charles Grose, M.D.; Michael Trigg, M.D.; Jill Morriss, M.D.; Dianne Atkins, M.D.; Eva Tsalikian, M.D.; Gail McGuinness, M.D.**
- 242 **Coral and Bells: The Mysterious History of Teethers and Rattles**  
*IOWA MEDICINE scientific editor, a retired pediatrician, discusses his collection of teethers and rattles.*  
**M.E. Alberts, M.D.**
- 247 **Advocates for Children**  
*In a special "Questions and Answers" interview, the president of the Iowa Chapter, American Academy of Pediatrics, discusses organized medicine's major role in children's health issues.*  
**Jack Swanson, M.D.**

## Scientific Article

- 251 **Arthritis: A Pediatric Perspective**  
*Arthritis is not for adults only. Juvenile rheumatoid arthritis affects 200,000 American children.*  
**William Daws, M.D.**

## About the Cover

This month's magazine, which is devoted to the specialty of pediatrics, is appropriately graced with the oil painting "Three Children." Painted by American artist John Francis in the mid-1800s, "Three Children" is reproduced with permission of the Museum of Fine Arts in Boston, Massachusetts. For more information about the painting, see the article "Coral and Bells" on page 242.





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### References

1. *USP DI Update*, September/October 1988, p 120.
2. *Br J Clin Pharmacol* 1985;20: 710-713.
3. Data on file, Lilly Research Laboratories.
4. *Scand J Gastroenterol* 1987;22(suppl 136): 61-70.
5. *Am J Gastroenterol* 1989;84: 769-774.

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**Brief Summary.** Consult the package literature for complete information.

**Indications and Usage:** 1. *Active duodenal ulcer*—for up to eight weeks of treatment. Most patients heal within four weeks.

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**Contraindication.** Known hypersensitivity to the drug. Use with caution in patients with hypersensitivity to other H<sub>2</sub>-receptor antagonists.

**Precautions:** *General*—1. Symptomatic response to nizatidine therapy does not preclude the presence of gastric malignancy.

2. Dosage should be reduced in patients with moderate to severe renal insufficiency.

3. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

**Laboratory Tests**—False-positive tests for urobilinogen with Multistix<sup>®</sup> may occur during therapy.

**Drug Interactions**—No interactions have been observed with theophylline, chloridazepoxide, lorazepam, lidocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450 enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increased serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

**Carcinogenesis, Mutagenesis, Impairment of Fertility**—A two-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a two-year study in mice, there was no evidence of a carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given

an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a two-generation, perinatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

**Pregnancy—Teratogenic Effects—Pregnancy Category C**—Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect, but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in one fetus, and at 50 mg/kg, it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in one fetus. There are, however, no adequate and well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

**Nursing Mothers**—Studies in lactating women have shown that 0.1% of an oral dose is secreted in human milk in proportion to plasma concentrations. Because of growth depression in pups reared by treated lactating rats, a decision should be made whether to discontinue nursing or the drug, taking into account the importance of the drug to the mother.

**Pediatric Use**—Safety and effectiveness in children have not been established.

**Use in Elderly Patients**—Healing rates in elderly patients were similar to those in younger age groups as were the rates of adverse events and laboratory test abnormalities. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

**Adverse Reactions.** Clinical trials of varying durations included almost 5,000 patients. Among the more common adverse events in domestic placebo-controlled trials of over 1,900 nizatidine patients and over 1,300 on placebo, sweating (1% vs 0.2%), urticaria (0.5% vs <0.01%), and somnolence (2.4% vs 1.3%) were significantly more common with nizatidine. It was not possible to determine whether a variety of less common events was due to the drug.

**Hepatic**—Hepatocellular injury (elevated liver enzyme tests or alkaline phosphatase) possibly or probably related to nizatidine occurred in some patients. In some cases, there was marked elevation (>500 IU/L) in SGOT or SGPT and, in a single instance, SGPT was >2,000 IU/L. The incidence of elevated liver enzymes overall and elevations of up to three times the upper limit of normal, however, did not significantly differ from that in placebo patients. Hepatitis and jaundice have been reported. All abnormalities were reversible after discontinuation of Axid.

**Cardiovascular**—In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in two individuals administered Axid and in three untreated subjects.

**CNS**—Rare cases of rare mental confusion have been reported.

**Endocrine**—Clinical pharmacology studies and controlled clinical trials showed no evidence of antiandrogenic activity due to nizatidine. Impotence and decreased libido were reported with equal frequency by patients on nizatidine and those on placebo. Gynecomastia has been reported rarely.

**Hematologic**—Fatal thrombocytopenia was reported in a patient treated with nizatidine and another H<sub>2</sub>-receptor antagonist. This patient had previously experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

**Integumental**—Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

**Hypersensitivity**—As with other H<sub>2</sub>-receptor antagonists, rare cases of anaphylaxis following nizatidine administration have been reported. Because cross-sensitivity among this class has been observed, H<sub>2</sub>-receptor antagonists should not be administered to those with a history of hypersensitivity to these agents. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

**Other**—Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine have been reported.

**Overdosage:** Overdoses of Axid have been reported rarely. If overdosage occurs, activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis for four to six hours increased plasma clearance by approximately 84%.

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## Donald F. Rodawig, M.D.

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President's Privilege



# A Punch Line to Ponder

**R**ECENTLY, I WAS UP LATER THAN USUAL and happened to turn on Johnny Carson's show just in time to hear him take a verbal stab at physicians. However, Johnny's joke had a twist that really caught my attention.

"How many of you think doctors are arrogant, over-educated money-grabbers?" Mr. Carson asked the audience. They laughed and applauded loudly.

"How many of you would give your eye teeth if your son or daughter became a doctor?" Johnny concluded. The applause was thunderous.

What began as a joke at the expense of physicians became a very telling statement, one which seems appropriate for the last column I will write as your president.

Yes, there is a daunting amount of "doctor-bashing" going on these days. We physicians are unfairly perceived as the pervading evil force behind the high cost of health care and we are taking our collective lumps because of this perception. Doctor bashing is so widespread that some physicians, weighing it with other problems inherent in a modern medical practice, profess regret they ever went into medicine in the first place.

However, I believe the response of Carson's "Tonight Show" audience cut through the negative generalities of a public image to the truth underneath. Despite what we see

on television, read in newspapers and hear on street corners, respect for doctors is alive and well. Patients may think doctors make too much money, but they love "their" doctor. People still admire and depend on their physicians and nobody has the right to convince you otherwise. Not even your colleagues.

I feel incredibly fortunate to be a physician and to have practiced medicine for 33 years. Ours is a wonderful profession which affords us the opportunity to help people in a way no one else can. Our profession has always commanded respect. Individually, it is our responsibility to earn it.

If I leave you with only one thought from my year as president, let it be this. Never forget what a miraculous thing it is to be a physician.

Let me also say this "President's Privilege" column could not be more aptly named. It has truly been my privilege to serve as your president. I thank everyone who supported and assisted me so ably during the past year and I wish the best to my successor Bob Whinery.

*Donald F Rodawig MD*

Donald F. Rodawig, M.D.  
President



# What's New in Pediatrics?

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*Nine experts discuss the most promising developments in pediatric medicine.*

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FROM THE DISCOVERY A new organism is associated with gastritis in children to high-technology interventional catheterization devices for congenital heart defects, recent advances in pediatrics are impressive. Following is a sampling of what's new in diagnosis and treatment of childhood disorders.

## Helicobacter Pylori and Gastritis

KATHLEEN SANDERS, M.D.

Most primary chronic gastritis is due to the gram-negative infectious agent *Helicobacter pylori*, previously named *Campylobacter pylori*. *H. pylori* harbors a high concentration of the enzyme urease that converts urea and water to ammonia and bicarbonate, thus allowing the organism to alkalize its environment. This makes it uniquely suited to life on the surface of the gastric epithelium, but its metabolic by-products disrupt the delicate balance of  $H^+$  ion diffusion, resulting in damage and inflammation, especially in the antrum of the stomach.<sup>1</sup>

In a recent study, *H. pylori* was detected in 29% of children undergoing endoscopy

for upper gastrointestinal symptoms. It was responsible for 90% of the gastritis detected. The majority of the children had epigastric pain or vomiting, with or without hematemesis. As in adults, there was a strong association between duodenal ulceration and *H. pylori* gastritis. Little is known of the epidemiology of this infection, but the prevalence of positive serology for *H. pylori* in family members of children with proven *H. pylori* gastritis is considerably higher than in controls. This suggests either person-to-person spread of the organism or a common source of infection.<sup>2</sup>

Diagnosis of this condition requires antral biopsies obtained through the endoscope and examined histologically with special stains, cultured or incubated with a colorimetric indicator to detect the presence of urease. Serologic tests may show promise as a diagnostic test in the future.

Optimum treatment for this infection is debatable, but treatment usually consists of 6 weeks of bismuth and antibiotics including amoxicillin and metronidazole. With this regimen, the majority of children improve symptomatically and histologically, but there is a significant relapse rate.  $H_2$  blockers also seem to improve affected children symptomatically, but do not eradicate the infection.<sup>3</sup>

## Self-Injurious Behavior

DAVID WACKER, Ph.D.

Self-injurious behavior (SIB) is repetition of motor movements that result in tissue damage. The most common forms of SIB are head slapping and hand biting, typically dis-

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The authors are associated with the U. of I. Dept. of Pediatrics. The article was edited by Frank Morriss, Jr., M.D., professor and head, U. of I. Dept. of Pediatrics.

played by autistic or mentally retarded children. Historically, SIB has been treated with medication, through punishment or reinforcement of more desirable behavior.

A relatively new approach involves functional analysis.<sup>4,5</sup> In this approach, experts attempt to determine why SIB is occurring — whether to gain attention, preferred items and activities or sensory stimulation. If the child engages in SIB and then is “comforted” by care providers, behavior is reinforced. SIB may be a means of escape from nonpreferred activities or people. When SIB occurs, specific tasks may be discontinued or care providers may turn away.

Depending on the patient, the functional analysis can sometimes be conducted on an outpatient basis, but may require inpatient evaluation or ongoing assessment. The benefit of functional analysis is that treatment can be matched to the individual.

## Parenteral Nutrition for Preterm Infants

KENNETH LOMBARD, M.D.

Meeting nutritional needs of preterm infants is a complex problem, especially when use of the gastrointestinal tract is limited. Providing adequate parenteral nutrition (PN) while minimizing the risk of complications is facilitated by adopting standardized routines. In addition, composition changes in the solutions have been made based on recent advances in research.

The ordering of PN has been simplified and standardized to minimize prescriber omission errors and decrease pharmacy labor costs. In 80-90% of preterm patients, “standard” solutions meet the needs. If further modifications are required, they can usually be incorporated into existing solutions.

The composition of PN solutions for preterm infants has changed. The changes include: use of pediatric profile amino acid solutions (e.g. Aminosyn PF®; Trophamine®); the addition of taurine and selenium; and a lower pH than standard solutions for adults. Reasons for these changes are: 1) evidence the plasma amino acid profile is improved (i.e., more similar to enter-

ally-fed infants); 2) taurine is thought to be a conditionally essential nutrient during this period of life and is important for bile acid metabolism; and 3) new solutions improve solubility of higher concentrations of calcium and phosphate often required for preterm infants.<sup>6,7</sup> The goals of these changes are to minimize the risk of complications (e.g. PN-associated cholestasis, calcium phosphate precipitation) and to maintain delivery of nutrients that preterm infants require for growth.

Two concentrations of amino acids are offered in the standardized ordering of PN for preterm infants at UIHC to meet the differing needs of preterm infants. These have final amino acid concentrations of 1.4% and 2.1%, respectively. The lower amino acid PN solution is most useful when high fluid intake is required (e.g. 180 ml/kg/day or greater), so that excess protein delivery is avoided. The higher amino acid formulation is used when fluid requirements are less. By allowing such flexibility with amino acid concentrations, the other nutrients are unchanged and safety is maintained while permitting optimum protein intakes.

## Varicella Vaccine

CHARLES GROSE, M.D.

In the early 1990s the Food and Drug Administration (FDA) may approve an application to market a live attenuated varicella vaccine. This vaccine has undergone clinical testing for over a decade, yet problems remain.<sup>8</sup>

As a live attenuated virus vaccine, it is similar to measles, mumps and rubella vaccines and the trivalent oral polio vaccine. Varicella vaccine was developed by a Japanese physician-scientist in the early 1970s.

Early studies in Japan were promising and the National Institutes of Health initiated a nationwide clinical trial in the U.S. in the 1980s. Children with leukemia were selected because they are at high risk of complications following chickenpox. The test subjects were leukemic children in remission for at least 9 months. Chemotherapy was discontinued from one week before adminis-

*(Continued next page)*



tration of the vaccine until a week after. The vaccine was given by injection twice about 3 months apart. As many as 40% developed a mild chickenpox-like exanthem within a month after immunization; 95% developed varicella antibody. Approximately 66% of the vaccinees remained seropositive 3 years after immunization.

Another issue is the longevity of protection afforded by vaccination. In the Japanese studies, between 4-6% of the vaccinees developed clinically apparent chickenpox several years after immunization. In the U.S. studies, several mild cases of clinical chickenpox were documented in vaccine recipients within 3 years of immunization.

The vaccine, when properly administered, protects children and adults from severe chickenpox. However, it is unlikely that varicella vaccine will provide life-long protection against chickenpox. Alternate strategies include repeated vaccinations, or one immunization with the goal of ameliorating chickenpox in later childhood, but not eliminate the disease. A third approach is to immunize adults who escape chickenpox as children and have increased morbidity from chickenpox. Pregnant women who contract chickenpox risk fetal infection and congenital varicella syndrome.

## Bone Marrow Transplantation

MICHAEL TRIGG, M.D.

Bone marrow transplantation has an increasing role in treatment of leukemias, resistant lymphomas, aplastic anemia, a variety of genetic diseases and those with immunodeficiencies.<sup>9</sup> The aim of a marrow transplant is to restore normal hematopoiesis following high doses of chemotherapy and total body irradiation. However, in a child with a genetic disease or aplastic anemia, the intent is to eliminate the immune system and permit engraftment of normal hematopoiesis.

The U. of I. Bone Marrow Transplant Programs have been leaders in the field of using alternative donors.<sup>10</sup> For many years, the largest registry of marrow donors was in

Iowa and accounted for the reputation the University developed in the field of using marrow from closely matched, unrelated donors. In addition, expertise has developed in the pediatric program using partially tissue-matched family members so every child who might benefit from a transplant can find a suitable donor either in the family or in the local-national registry.

The new marrow graft contains mature lymphocytes from the host, and, once the graft begins to grow, will continuously produce lymphocytes with HLA phenotype of the donor. These donor lymphocytes, whether directly infused with a marrow graft or whether they grow from the engrafting marrow stem cells, can react against foreign tissue antigens in the new host, thereby destroying host tissue. This is called the graft-versus-host disease reaction (GvHD).

Methods to remove the majority of mature T-lymphocytes from the marrow graft prior to infusing it into the recipient (T-lymphocyte depletion) permit marrow engraftment without interfering GvHD. Eventually, the marrow stem cells will produce lymphocytes of the donor phenotype. GvHD may result later, but this tends to be more limited and controllable.

It takes 6-18 months following a marrow transplant for the immune system to fully recover, and in many patients, it may not recover for years. Immunologic reconstitution by the use of hematopoietic growth factors in the near future is expected to reduce the morbidity due to infections. In addition, newer methods of infection prophylaxis have been developed, including the use of intravenous immune globulin on a regular basis to help reduce the occurrence of cytomegalovirus pneumonias and other bacterial infections.

## Interventional Cardiac Catheterization

JILL MORRISS, M.D.

With the advent of echocardiography, fewer cardiac catheterizations are performed solely for diagnosis. Catheterizations are more likely to be longer "interventional"

procedures to manipulate into the circulatory system and heart newly designed devices.

Balloon atrial septostomy, is no longer the most invasive procedure performed. In a patient older than 3 months in whom an atrial communication is inadequate, the atrial septum can be incised with a small retractable switch blade, preparing it for subsequent use of the balloon atrial septostomy catheter. This technique creates an atrial communication in patients with transposition physiology, mitral valve atresia, tricuspid valve atresia or in an occasional patient with severe right heart failure from pulmonary vascular obstructive disease.

Balloon valvuloplasty at time of cardiac catheterization is the preferred treatment for stenotic pulmonary valves. The technique involves placement of a deflated balloon to straddle the pulmonary valve. Inflation of the balloon tears apart the fused valve commissures. Patients to whom this procedure is offered meet the same criteria for surgical relief of obstruction.

Experience with balloon valvotomy in patients with pulmonary valve stenosis indicates it may be appropriate for nonsurgical treatment of aortic valve stenosis. Balloon dilation for aortic valve stenosis is performed on an investigational protocol at the U. of I. Hospitals. The procedure is undertaken at a slightly higher risk of complications due to the necessity of inserting the large balloon catheters retrograde from an arterial approach. The risk of producing aortic valve insufficiency is balanced against the risk of suboptimal relief of aortic valve stenosis in selecting balloon size. The preliminary reports of aortic valve dilation in children are encouraging. At the U. of I. Hospitals, 6 children have undergone this procedure and all have had acceptable reduction in the valve gradient.

On the horizon is final FDA approval of an umbrella device for closure of the persistently patent ductus arteriosus. By means of a delivery catheter, the device is seated and released into the ductus arteriosus. The device is approved in Europe and approval for U.S. cardiologists is expected soon.

Successes with these interventional techniques have led to enthusiasm for treating other stenotic circulatory lesions, including coarctation of the aorta, systemic venous

narrowing, pulmonary vein narrowing and pulmonary artery branch stenosis. In addition, investigative work is being done with a modified "clam shell" device for closure of intra-atrial and intra-ventricular communications. Other trials are underway using intravascular stents, which are permanent implants left in an area of newly expanded vascular compromise.

## Transesophageal Cardiac Pacing

DIANNE ATKINS, M.D.

Using the esophagus as an extracardiac pacing site is common. Although ventricular pacing via the esophagus is difficult, atrial pacing is easily achieved, providing pediatric electrophysiologists with a safe, relatively non-invasive tool for diagnosis and management of supraventricular tachycardias in childhood.

Esophageal pacing requires specialized equipment and an understanding of the basic principles of cardiac electrophysiology. A silicone-rubber coated bipolar electrode catheter is placed in the esophagus through the nares and proper catheter position is estimated by a patient-height nomogram or directly visualized with fluoroscopy.

Transesophageal pacing has 3 primary applications: termination of supraventricular tachycardia, initiation of supraventricular tachycardia to determine mechanism and evaluation of antiarrhythmic therapy. It is useful to convert narrow complex supraventricular tachycardia and atrial flutter to normal sinus rhythm. It can be accomplished safely and rapidly at the bedside with minimal (or no) sedation. At UIHC, we perform esophageal pacing if pharmacologic therapy fails and the patient is hemodynamically stable.<sup>11</sup> This protocol has all but eliminated the need for cardioversion in patients with hemodynamically stable tachycardia.

Transesophageal pacing is also used to establish or exclude the diagnosis of supraventricular tachycardia in patients with palpitations, especially when the episodes are infrequent or of brief duration. The test is

*(Continued next page)*



sensitive and specific, making it a valuable substitute for more invasive and complicated intracardiac testing. In addition to confirming the diagnosis of SVT, the esophageal electrogram during tachycardia helps differentiate reentrant atrioventricular node tachycardia from reciprocating atrioventricular tachycardia and atrial flutter.<sup>12</sup> This knowledge directs antiarrhythmic therapy, which has become more diverse and precise with the development of new drugs. The final application is the evaluation of antiarrhythmic efficacy. Transesophageal pacing permits a quick, reliable assessment.

## Non-classic Growth Hormone Deficiency

EVA TSALIKIAN, M.D.

The syndrome of a non-classic growth hormone deficiency was recognized recently. Other terms, such as "normal variant short stature" and "neurosecretory dysfunction of growth hormone secretion" have been used for this condition.

In children with non-classic growth hormone deficiency, the integrated 24- or 12-hour plasma growth hormone concentrations are frequently low, but normal patterns in children without short stature have not been established.<sup>13</sup> Therefore, this syndrome has recognizable features but nonspecific diagnostic criteria. Since the diagnostic criteria are not easily defined, the decision to treat with growth hormone is difficult and should be made carefully.

Growth hormone treatment for children with non-classic growth hormone deficiency was not attempted until recently when recombinant DNA techniques made growth hormone available in unlimited quantities. In a multiple center study, treatment with growth hormone in children with this syndrome was effective in impressively accelerating their growth rates for the first year, while the rate of bone age maturation did not change.<sup>14</sup> Final heights are not yet available in these children, but predictions are improved. This study and others in progress will help determine the appropriateness of treatment with growth hormone.

Treatment with growth hormone in short girls with Turner syndrome has also been proven beneficial.<sup>15</sup> Final height predictions in treated girls with Turner syndrome have improved by 2 to 3 inches, an important improvement considering that such patients have an expected height of 4 feet 8 inches if untreated.

Because growth is a process that continues until final fusion of the epiphyses, treatment with growth hormone has to be implemented for the total length of growth time after diagnosis. Some studies indicate the younger the patient at the time of diagnosis and initiation of treatment, the better the outcome. The psychological and tangible benefits to these children in a society of "heightism" should be carefully considered. However, growth hormone is an expensive treatment and ethical issues for its use in inadequately studied or poorly indicated circumstances are a concern.

## Surfactant Therapy for RDS

GAIL MCGUINNESS, M.D.

Respiratory distress syndrome (RDS) remains a major cause of death and disability in premature infants. Surfactant deficiency has been recognized as the critical factor in the pathogenesis of RDS. Surfactant coats alveolar surfaces of the lung and decreases surface tension, thus stabilizing the alveoli against collapse during expiration. It is composed of several lipids, primarily dipalmitoylphosphatidylcholine (DPPC), and a number of surfactant specific proteins. Replacement of deficient surfactant has been under evaluation in clinical trials and FDA approval is expected soon for routine use.

The first premature infants were successfully treated with intratracheal instillation of exogenous surfactant in 1980 in Japan. The surfactant product was an extract of bovine surfactant with added synthetic lipids. Controlled clinical trials have been underway since 1985 in the U.S. with a broad array of natural and artificial surfactants.

The clinical trials have been encouraging.<sup>16, 17</sup> Most exogenous surfactants under study have reduced the severity of RDS and

Currently, 2 experimental exogenous surfactants are available. Exosurf® Pediatric is a synthetic surfactant made up of DPPC with the addition of small amounts of spreading agents or emulsifiers. Surfacta® is a modified surfactant extracted from bovine lung. Since these are investigational drugs, the provisions and safeguards of clinical trials remain in effect, and parental permission is required for administration of the drug.

References noted in this article are available from the editors of *IOWA MEDICINE*.



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# Coral and Bells: The Mysterious History of Teethers and Rattles

M.E. ALBERTS, M.D.  
West Des Moines, Iowa

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***For centuries, artistry, religious symbolism and superstition have been connected with children's rattles and teethers.***

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*Art thou not breeding teeth?  
I'll get a coral for thee.*

— Francis Baumont (1584-1616)  
and John Fletcher (1579-1629)

English Dramatists and Collaborators

*With what a look of proud command  
Thou shakest in thy tiny hand  
The coral rattle with its silver bells  
Making a merry tune!*

— Henry Wadsworth Longfellow  
(1807-1882); "To a Child"

**T**HERE IS A MYSTIQUE about teethers and rattles. They have not always been just toys for the amusement of small children. They rival dolls as the oldest children's toys. Centuries past rattles appeared in many

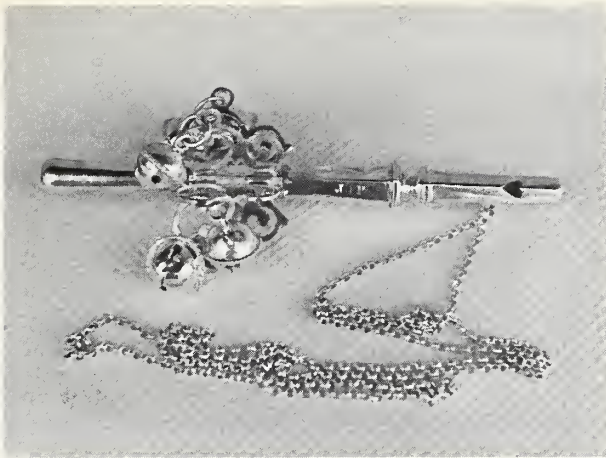
forms, were made of various substances and had a religious as well as supernatural meaning. During the 16th, 17th and 18th centuries baby rattles became an elaborate art form and were fashioned of silver or gold trimmed with coral, agate or rock crystal. Many became family treasures, having been presented as christening gifts, and often were prominent in portraits of children. Obviously such items were possessed by the more wealthy, but played an important role in baby rattle lore.

There was considerable superstition surrounding teethers. Likewise, the substances of which they were made were significant. In 1742 it was reported that "above a tenth part of infants die in teething by symptoms proceeding from irritation of the nervous parts of the jaws, occasioning inflammations, fevers, convulsions, looseness with green stools not the worst symptom, and in some gangrenes." Figures compiled in 1821 record that 17.4% of the deaths in the 6 months to 2 years of age group were due to "tooth fever and teething."

In their anxiety about the fretful infant parents would turn to the magic of an amulet worn as a necklace suspended on a ribbon from the infant's neck. One amulet was made from the vertebral bones of a snake. Necklaces were made of the roots of henbane or peony. Various topical applications, (e.g. oils of sweet almonds, brain of a hare, blood from a cock's comb, bitch's milk to name a few) were prescribed to be rubbed

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Dr. Alberts, a retired Des Moines pediatrician, is scientific editor of *IOWA MEDICINE*. He has an extensive collection of antique children's rattles and teethers.



Silver whistle and bells with silver chain: c. 1710, ? French; 6" overall length; partly faceted stem with 5 bells fitted on brackets; one end plain while the other is a whistle; engraved "JP."

onto the swollen gums. The tooth of a wild animal (bear, wolf) was considered to emit while in the infant's mouth some effluvia very subtle and penetrating to promote the eruption of a tooth. Such teethers were usually bound to a silver handle and suspended on a ribbon from the child's neck. They were most commonly used in the 1700s and 1800s.

From early days it was believed coral protected against fits, sorcery, charms and poisons. Small branching pieces of coral were suspended from the child's neck. In Southern Italy these coral pieces were very common and often in the shape of a phallus. Even back to the time of Paracelsus (1493-1541) a coral amulet was recommended. Naturally, because it was suspended around the infant's neck as an amulet, it became a favorite substance upon which to gnaw. It was further thought that the strength of the sea was transmitted to the infant. Woe to the infant possessing a piece of pink coral which began to fade in color, as it might with time and exposure. Superstition equated the fading of the coral to a diminishing state of health of the infant. Coral, amber, rock crystal, agate, ivory and mother-of-pearl were favorite teething substances.

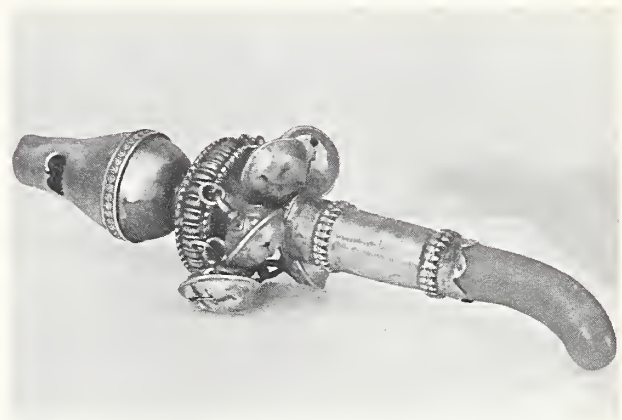
Rattles have been used to amuse children for centuries. Early ones consisted of bones, pebbles or shells strung on a string. Others consisted of dry balls of clay, pebbles

or dry seeds enclosed in small containers of vine, grasses or pottery. Pottery rattles dated about 200 AD in the shape of animals or birds have been found in archeologic excavations.

Much superstition existed also about the rattles of past centuries. Noise makers in the form of cymbals, bells, whistles, horns or rattles have served as instruments of sorcery. As a talisman, a rattle was believed to possess powers to drive away evil spirits and protect the holder from illness, mishaps and evil. Such ideas, furthermore, were born out from religious beliefs as well as magic. The shamen of old used rattles accompanied by incantations in rituals to ward off evil spirits and disease. By its shape and design the rattle also served as a scepter, significant of the powers possessed by the shaman or priest.

Bells have had a prominent place in religion. The 28th chapter of Exodus relates that the priest while in the temple must wear a particular style robe with golden bells and dried pomegranates affixed to the lower hem. These bells and pomegranates signalled the presence of the priest. The pomegranate was significant in religious belief as well. It has been thought in the past that it was the fruit of the tree of life. Small bells and scepters are used in religious rituals in our day. In addition, church bells are still symbolic worldwide.

*(Continued next page)*



Silver coral and bells: c. 1815; Lee and Company, London. Engraved "ELS" on mouthpiece of whistle; 7 bells on fluted body; 7" long.



It is natural that teethers and rattles became incorporated as one object. The most beautiful example of these is the coral and bell rattles. Many of these rattles are true works of art, fashioned by silversmiths of prominence. The Bateman's, John Scofield, Joseph Taylor, George Unite and Paul Revere, among others, have left a legacy of these beautiful objects. The most exquisite of these coral and bells were from Holland, France, and England; later from Colonial United States.

The coral and bells rattles are of similar form. They consist of a cylindric elongated body with a whistle on one end and a piece of coral on the other. The center portion of the shaft has one or 2 tiers of small bells fastened to a bulbous body. It has been suggested by one authority on rattles that the bulbous body represents a pomegranate and the tiers of bells the branches of the tree of life. Again, there is a relationship with religion. The silver or gold body of the rattles was sometimes very plain; others were elaborate in design with scrolls, chasing and repoussé artwork. Near the whistle end was a small ring by which the rattle could be suspended from a silver chain or ribbon. Paintings of children with one of the coral and bells usually depict the rattle suspended from the waist. The weight and size of the rattle would preclude its being suspended as a necklace.

Silver rattles often can be dated by the artisan's touch mark. These marks stamped

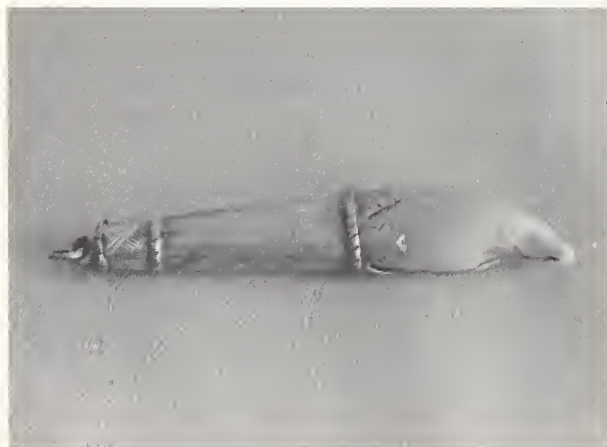


**Silver coral and bells:** Hester Bateman; London; c. 1785; 5 1/2" in length; whistle end has hinged loop; chased with flower design as well as fluting; 2 rows of 4 bells each; coral is banded with plain silver band.

on their work denoted the identity of the silversmith, the city of origin and the date in the same manner as other items of sterling silver or gold. Reference books provide easy identification if the marks are clear and unblemished. Also, some coral and bells have engravings indicating a date of special significance, e.g. a christening gift. Often rattles of silver were embellished by gold wash or silver-gilt. Because of their relative rarity and historic interest, the coral and bells rattles are sought after collectors items and command ever increasing prices.

In addition to limited numbers of coral and bells rattles in prized collections we know much about their beauty from portraits of children. The English, Dutch and French were most notable in producing such works in the 16th, 17th and 18th centuries. One of the earliest of these portraits is that of Edward VI as a child painted by Hans Holbein the younger (German, 1497-1593). The gold rattle held by Edward VI is a very beautiful one befitting the royal child. The portraits of the children show them dressed in elaborate lace-trimmed dresses. The nature of the rattles and the exquisite costumes attest to the fact they were children of wealthy families.

Some of the more beautiful Dutch portraits were done by Moerten DeVos (1532-1603), J. G. Culp (1594-1651), Rembrandt (1606-1669), Cesar Boëtius van Everdingen



**Teether:** wolf tooth with silver handle; ? German; 17th century; 4" in length.

(1606-1678) and Govert Flink (1615-1660). A painting by DeVos of a child named Echie Pieters (1592) was featured on a Dutch stamp in the late 1950s. Incidentally, the Dutch often feature children on their stamps as some of the revenue goes to child welfare. There are notable portraits by the English as well as by Americans. American painters who produced similar portraits, but of course in different costumes, include John Singleton Copley (1738-1815), John Smibert (1688-1751), Joseph Badger (1708-1765) and John F. Francis (1810-1885). The latter painter did the 1840 portrait of "Three Children" which graces this month's cover. Again, the children are elegantly dressed in the fashion of the time.

The rattles and teethingers of today are comparatively cheap toys. Plastics have replaced silver, gold and precious minerals. The coral and bells, however, would not pass the safety standards of today. The bells on many of the rattles still in existence are missing. One wonders how many were as-

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*'Woe to the infant possessing a piece of pink coral which began to fade in color, as it might with time and exposure. Superstition equated the fading of the coral to a diminishing state of health of the infant.'*

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pirated by the children. Nevertheless, the rattle as a teether and a toy remains an indispensable item in the nursery. Beauty has been sacrificed for practicality, safety and cost. The art objects of infantilia remain for us to admire as precious collectables.

### References

A reference list for this article is available from the author or the editors of *IOWA MEDICINE*.

# TENTH

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### Saturday, May 26, 1990: Iowa Academy of Surgery Meeting

Members of the Iowa Academy of Surgery will present papers at the scientific and clinical session on Saturday morning. This session of the meeting is open to all those attending Friday's meeting. The meeting will be held in the Ralph A. Jester Auditorium at Iowa Methodist Medical Center School of Nursing. Category I CME credits will be given for attending this interesting and informative session.

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## Jack Swanson, M.D.

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Questions and Answers



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# Advocates for Children

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*The author, an Ames pediatrician and president of the Iowa Chapter, American Academy of Pediatrics, discusses that group's role in improving the health of children and adolescents.*

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### What is the picture with regard to supply of pediatricians?

An increasing supply of pediatricians and lower birth rates resulted in some estimates for a future surplus. However, these estimates are incorrect — especially in inner cities and rural areas. If adequate health care is made available to the many children who lack health insurance, the supply could be even more inadequate. Also, the increasing number of adolescents receiving care from pediatricians has increased the demand.

In Iowa, there is a need for more pediatricians, especially in rural areas. The majority of private pediatric groups have recently added associates or are currently recruiting. There are 2 pediatric residency programs (University Hospitals and Blank Childrens Hospital) which supply several new pediatricians to the state annually.

### What are the objectives of the Iowa Chapter, American Academy of Pediatrics?

The primary objective of the Iowa Chapter is to promote and implement the goals and programs of the American Academy of Pediatrics. The mission of the Academy is attainment of optimal physical, mental and social health for all infants, children, adolescents and young adults.

As the professional organization for Iowa pediatricians, the Iowa Chapter also attempts to serve the needs of its members. Providing programs of professional education for its members is an ongoing objective, as is addressing practice management needs.

### What are the concerns of pediatricians with regard to practice environment?

Pediatricians share many of the concerns of all physicians. These include: increasing intrusion of third party payors into medical practice (especially for the many pediatricians involved in HMO and IPA plans); inadequate reimbursement from Medicaid and private insurers for preventive care and cognitive services such as anticipatory guidance and counseling for psych-social problems; and medical liability, specifically the prolonged statute of limitations for minors.

Disproportionately, one-third of the estimated 36 million Americans without adequate health insurance are children. The American Academy of Pediatrics hopes to see universal health insurance for all children and pregnant women based on a pluralistic, competitive system involving the private and public sectors.

### What role is the Academy playing in social issues pertaining to children and adolescents?

The Academy is a major advocate for children, serving as the principal source of child health information. Over 30 committees develop positions, publications and programs in areas including child abuse, adolescent health, handicapped children, accident and poison prevention, substance abuse, tobacco, child care, nutrition and child health financing.

*(Continued next page)*



The Academy maintains a Washington, D.C. office to ensure children's needs are considered as legislation and public policy are developed. This office has the largest staff of all the medical specialty societies and is a very effective voice for children.

At the state level, similar efforts are undertaken. Chapter committees address social issues and members support legislative initiatives for children. Iowa pediatricians serve on state and national commissions and committees involved with children's issues.

### **What changes have affected the practice of pediatrics?**

The most notable change has been expansion of the age of the pediatric patient. Traditionally, pediatricians have been viewed as "baby doctors." They are experts in infant care, but now specialize in child health from birth into the 20s.

Pediatricians have become increasingly involved in preventive health care and anticipatory guidance in the growth and development of children. This function has become significantly more complex with the realities of working parents, child care, single parents, learning and attention deficit disorders, substance abuse, adolescent depression and suicide, eating disorders, teenage sexuality and AIDS.

Finally, the recent explosion of medical knowledge has led to an increasing number of pediatric specialists.

### **A Search For Unusual Cases**

Medical cases are varied and challenging. All are not textbook in character. Some are exciting, some unbelievable and some just interesting. The editors of *IOWA MEDICINE* believe our readers can recall some interesting cases encountered in practice. We do not seek long case reports, nor must they be scientific in the purest sense. Please share your experiences with us and our readers! Send your curious cases to *IOWA MEDICINE*, 1001 Grand Avenue, West Des Moines, IA 50265.

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Line drawings are acceptable if they are dark and can be reduced to fit in one column.

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# Arthritis: A Pediatric Perspective

WILLIAM DAWS, M.D., FAAP  
Burlington, Iowa

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*Though it affects 200,000 children in the United States, juvenile rheumatoid arthritis is easily misdiagnosed.*

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**P**EDIATRICIANS MUST FREQUENTLY EVALUATE children with musculoskeletal complaints. Gait disturbances are especially common. It is important to differentiate serious from benign conditions and to differentiate among serious conditions so appropriate therapy is started in a timely manner. One such condition, juvenile rheumatoid arthritis (JRA), affects 200,000 children in the U.S. but is easily misdiagnosed. This case report illustrates a diagnostic approach.

## Case Report

An 18-month-old patient was brought to our office for routine physical exam. She had a 4-week history of limp and apparent left knee pain. Her parents reported that she had fallen down 4 steps 3 months earlier. She did not seem to have any problems at the time, although in retrospect, her parents wondered if she might have limped slightly.

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Dr. Daws is a clinical assistant professor with the University of Iowa Department of Pediatrics and practices in Burlington.

Over the 4 weeks before her exam, she had a gradually worsening limp which progressed to the point that she refused to walk upon arising. The limp seemed to improve as the day progressed but she sometimes reverted to crawling later in the day and again in the evening. The parents attempted various unsuccessful maneuvers to alleviate the problem including shoe changes, no shoes, massage, hot packs, exercise and rest.

The pain eventually was localized to the left knee. The parents did not notice bruising, swelling, heat or redness of the knee or leg. There was no known history of fever, malaise, fatigue, chills, rashes or sore throat. Family history was negative except the mother's physician had raised the possibility of lupus based solely on a facial rash.

Physical exam revealed an alert active child in no distress who was at 50% for height and 30% for weight. There were no ocular abnormalities, cardiac murmurs, abdominal masses or skin rashes and no pharyngitis or lymphadenopathy. Examination of the joints revealed the left knee lacked 30° of full extension. The knee was swollen, slightly warm with fluid in the prepatellar bursa and showed synovial thickening. Her gait was antalgic. She did not extend her knee fully and kept her left leg externally rotated upon ambulation.

## Discussion

Correct use of laboratory and radiologic testing is essential to obtain the most accurate diagnosis while preventing unnecessary morbidity and cost to the patient. In the case of

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juvenile rheumatoid arthritis, many tests are useful in eliminating other diagnostic possibilities. The differential diagnosis in this case includes occult fracture, osteomyelitis, septic arthritis, rheumatic fever, malignancy, Lyme arthritis, lupus and, of course, JRA. What tests given in what sequence will help the physician arrive at the correct diagnosis?

- **CBC** — This test helps rule out leukemia, systemic disease and infection. In addition, in JRA the hematocrit may be decreased and platelet count increased. Our patient had hematocrit 30%, hemoglobin 13 g/dl, WBC 10,000/mm with normal differential and platelet count 390,000/mm<sup>3</sup>.

- **Erythrocyte Sedimentation Rate** — A normal ESR does not rule out JRA as half of JRA patients are negative at diagnosis. However, it is useful in following disease activity. The initial ESR in our patient was 19 mm/hr but rose to 30 mm/hr one month later.

- **Rheumatoid factor** is not of much use in pediatric populations as only 7% of patients with JRA test positive.

- **Antinuclear antibody (ANA)** is positive in 34% of patients with pauciarticular JRA. Our patient was negative.

- **Serum chemistries** are generally normal in patients with JRA but are useful in monitoring patients for toxicity caused by therapy. Our patient's values were normal.

- **Antistreptolysin O (ASO) titer** was obtained to rule out post-streptococcal reaction arthritis or acute rheumatic fever. It was normal at 12 Todd units.

- **Bone X-rays** were obtained to rule out fracture or tumor and provide baseline to monitor for periarticular changes of chronic arthritis. These were normal.

- **A radioactive bone scan** was obtained to rule out occult fracture, tumor and osteomyelitis. These were also normal.

- It should be noted that joint aspiration was considered for this patient but rejected. It is clearly essential to rapidly diagnose and treat septic joints. However, in the case of this patient, the lack of acute onset, fever and leukocytosis despite 4-week duration made septic arthritis unlikely. Also synovial fluid can be misleading since noninfected JRA may have fluid with very high WBC, left shift and low glucose. The reader should be cautioned that had the involved joint been a hip, aspiration (surgical drainage) would have been advised

due to the high risk of compromise to the blood supply to the femoral head.

Occult fracture, osteomyelitis, septic arthritis and malignancy were eliminated by lab-work and radiologic exams. Lyme arthritis was unlikely in the absence of tick exposure, rash, malaise, systemic symptoms and lymphadenopathy. In addition, the arthritis was generally episodic, severe and migratory.

Acute rheumatic fever was unlikely since streptococcal infection is unlikely in this age group. The arthritis is generally of rapid onset, in a single joint, lasts 2-6 days, subsides in the initial joint, then becomes migratory and rapidly flaring in additional joints. With lack of other Jones Criteria and normal ASO titer, the diagnosis was eliminated.

Lupus is unusual in this age group. The arthritis is acute with the pain often out of proportion to arthritis. It also often involves multiple joints, especially the fingers and is usually intermittent.

Juvenile rheumatoid arthritis may be monoarticular, pauciarticular (less than 4 joints involved) or polyarticular. The joint swelling is constantly and daily present for at least 6 weeks. It usually persists for months to years. Seventy percent of patients with JRA are girls and 50% have pauciarticular disease. Forty-three percent of patients with pauciarticular disease have onset at less than 5 years of age, usually as toddlers.<sup>2</sup> In other words, 20% of all patients with JRA are girls under 5 years of age with pauciarthritis most commonly involving the knee initially.<sup>3</sup> Thus, suspicion that a young girl with knee swelling might have JRA is heightened by age and sex alone.

The clinical course of our patient was typical of JRA. Onset is gradual and weeks or months pass before the family realizes a problem exists. It is also usual in JRA to have daily complaints. Swelling is extremely important as it is unusual to have a long history of arthralgia without swelling in JRA. The swelling is also persistent in JRA as opposed to episodic in Lyme disease and ARF.

Unfortunately, as in our case, the parents do not always appreciate the swelling due to its gradual onset. Monitored over time, this child had persistent synovial thickening demonstrated on future office visits. The final clue to JRA in this patient was morning stiffness. This is a subjective feeling, noted upon arising, that a joint(s) does not move as freely as

later in the day.<sup>3</sup> This may recur after naps or prolonged sitting. It is strongly suggestive though not pathognomonic of JRA. The longer the duration and the greater the severity of morning stiffness, the more likely rheumatic disease is the cause.

Once the diagnosis is made the goal of therapy is to maintain function while awaiting remission. There is no cure for JRA. However, pauciarticular JRA has a good prognosis with 70% of patients going into remission. Drugs of choice for JRA are the nonsteroidal anti-inflammatory drugs. Aspirin, tolmetin and naproxen are approved by the FDA for treatment of JRA. All can cause gastritis, esophagitis, decreased renal blood flow and decreased platelet aggregation. Other side effects include hepatotoxicity, diarrhea, headache, tinnitus, rashes, fluid retention and, rarely, bone marrow suppression.

With aspirin there can be predisposition to Reye Syndrome. Therefore, CBC, chemistry profile and urinalysis should be monitored every 6 months to screen for toxicity. Physical therapy should be provided to maintain range of motion of all affected joints. Iridocyclitis is common in pauciarticular disease occurring in

30% of pauciarticular affected patients. There is no correlation between joint disease activity and eye involvement. Thus, regular ophthalmology evaluation is essential even in absence of joint symptoms. In fact, iridocyclitis may occur anytime up to 10 years after onset of joint symptoms.

In summary, children are often seen by their physicians for musculoskeletal complaints. It is important to remember that arthritis is not a disease of adults alone. Although often a diagnosis of exclusion, there are important clinical and laboratory clues to diagnosis. It is also important to follow affected patients closely in cooperation with physical therapists and ophthalmologists to prevent or treat common complications of joint contractures and iridocyclitis. Laboratory monitoring for drug toxicity is also worthwhile.

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# The Case of the Confused Man

**A** 58-YEAR-OLD MAN WAS ADMITTED to U. of I. Hospital with seizures and encephalopathy.

## *Clinical Findings*

**Brenda Phillips, M.D., Internal Medicine:** Other than a 10-year history of controlled hypertension, he was well until a sudden loss of consciousness developed and he struck his head on a dresser. He was admitted to an ICU for 2 days. Five days later, a grand mal seizure was witnessed and he was started on phenytoin.

Over the ensuing week, the patient had decreased attention span and jumbled speech. After 2 more seizures, he was readmitted. Phenytoin was discontinued and carbamazepine started. Laboratory data included sodium 142 meq/L, calcium 9.8 mg/dl, erythrocyte sedimentation rate 11 mm/hr and antinuclear antibody titer 1:20. Computed tomographic (CT) scan of the head was normal. Cerebrospinal fluid (CSF) showed 0 WBC and 7 RBCs/ul. CSF cultures and cryptococcal antigen were negative; glucose was 64 mg/ml and protein 33 mg/dl. An electroencephalogram (EEG) showed background slowing with frontotemporal spike discharges. The patient was transferred to U. of I. Hospital. He was an insurance salesman who smoked 2 packages of cigarettes a day for 35 years and drank 1-2 beers daily.

When examined after a seizure, he was obtunded with sonorous breathing. Body temperature was 37° C, heart rate 70 beats per minute, blood pressure 130/80 mm Hg and res-

pirations 20 per minute. There were no signs of head trauma and no carotid bruits. Fundoscopic exam was normal. Bibasilar wheezes and crackles were heard. The heart was normal and the abdomen benign. There was no edema or lymphadenopathy. There was a slight right facial droop and mild right hemiparesis. Deep tendon reflexes were minimal or unobtainable. The right great toe was upgoing. The right sided findings resolved within 2 hours. Laboratory studies showed a white count of 13,000/ul with a normal differential. Hemoglobin was 17 g/dl, hematocrit 51% and platelet count 265,000/ul. Sodium was 129 meq/L, potassium 3.7 meq/L, chloride 87 meq/L, bicarbonate 23 meq/L and creatinine 0.9 mg/dl. Arterial blood gas studies revealed pH 7.39, pCO<sub>2</sub> 42 torr and pO<sub>2</sub> 55 torr. Carbamazepine level was 7.4 mcg/ml (nl 4-12). A portable chest x-ray was normal and an EEG showed diffuse delta-theta slowing.

Despite a loading dose of intravenous phenytoin, the patient continued to have seizures and profound confusion. Sodium increased to 137 meq/L without specific therapy. Repeat CSF exam showed pressure 17.2 cm H<sub>2</sub>O, 970 RBCs, 5 WBCs, negative culture and VDRL, beta-2-microglobulin 1.3 (nl < 2.4 mg/L) and negative cytology. Magnetic resonance imaging (MRI) showed multiple regions of abnormal signal (T2) within the cortical medullary junction of the frontal lobes. Serum drug screen and urine heavy metal screen were negative. The ESR was 44 mm/hr. The patient remained afebrile. Blood cultures were negative. A 3-vessel cerebral angiogram was normal. No seizures were noted for 6 days after the phenytoin dose was increased but on the 8th hos-

This material is furnished by the Department of Internal Medicine, University of Iowa College of Medicine.

pital day, the patient had another grand mal seizure. Arterial blood gas on 4L O<sub>2</sub> showed pH 7.39, pCO<sub>2</sub> 48 torr and pO<sub>2</sub> 59 torr. Ventilation-perfusion scanning indicated low probability of pulmonary embolism. A diagnostic test was obtained.

## Clinical Discussion

**Roger Kathol, M.D., Internal Medicine and Psychiatry:** There are several important historical issues. Notably, the patient was healthy beforehand and was treated only for hypertension. He did have a 70 pack year smoking history and was a social drinker.

The patient was transferred to University Hospital 24 days after the syncopal episode. Over little more than 3 weeks, he had numerous seizures and a personality change. Critical aspects of the physical examination include normal blood pressure and the absence of meningeal signs or fever. The neurologic exam showed right sided signs but these were postictal findings (Todd's paralysis). The patient was hyponatremic and may have had the syndrome of inappropriate secretion of anti-diuretic hormone (SIADH). He also had a pO<sub>2</sub> of 55 torr without prior pulmonary symptoms.

In the hospital, his seizures were controlled but he was profoundly confused. The CSF showed 970 RBCs and 5 WBCs. The normal ratio in peripheral blood is about 700 RBCs to 1 WBC. The white cells were all lymphocytes which is unusual for a blood contaminated specimen. CSF VDRL and cytology were negative. On the 32nd day of his illness, the patient had another seizure and hypoxemia. I cannot easily explain the deteriorating pulmonary status although aspiration is always a possibility during a seizure.

In the differential diagnosis of seizures, several things can be ruled out. Hereditary and familial problems and developmental defects are unlikely to cause seizures at age 58. Degenerative conditions like Alzheimers and Huntington's chorea can be associated with seizures but usually present with a slow progressive course and other neurologic findings. There is an old axiom that seizures between ages 40 and 60 are secondary to tumor.

When trauma is responsible for seizure, it is often a single seizure. Multiple seizures are usually easily controlled with anticonvulsant medication. Our patient had a bump on his head but required several medication ad-

justments for seizure control. Multiple imaging studies of the brain failed to show a subdural or subarachnoid bleed. There are many nutritional, metabolic and toxic causes of seizure disorders but these are relatively easy to detect. Our patient was hypoxemic but a pO<sub>2</sub> of 55 torr usually does not trigger seizures and he continued to have seizures on oxygen therapy. Vascular diseases can cause seizures. Initially, ESR and ANA were normal suggesting vasculitis was unlikely. The ESR later increased but not to the levels usually seen with vasculitis (80-100 mm/hr). Stroke causes seizure in less than 15% of patients and recurrent seizures in less than 5%.

I will concentrate on 2 more likely diagnostic considerations — CNS infection and tumor. Meningitis is always a concern when an

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*'In the differential diagnosis of seizures, several things can be ruled out. Hereditary and familial problems and developmental defects are unlikely to cause seizures at age 58.'*

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adult presents with seizures, however our patient had no headache, nuchal rigidity, nausea or fever. Bacterial or fungal meningitis is therefore unlikely; I would have expected more abnormalities in the CSF as well. Parasitic and syphilitic meningitides are also unlikely. Herpes encephalitis is an important consideration because of seizure and encephalopathy but there was no fever (a characteristic finding) and the angiogram was normal. The angiogram in herpes encephalitis often shows temporal swelling, vascular blush and slow arterial filling. The CSF can have high white and red cell counts and the protein is usually increased. The CT scan often shows lesions in the temporal lobe.

The patient's clinical course fits well with infection with papovavirus or progressive multifocal leukoencephalopathy (PMLE). This is usually associated with reticuloendothelial tumors or immunosuppression although it can occur in the non-immunosuppressed individ-

*(Continued next page)*



ual. It has a rapid onset and a subacute progressive course. Headache is infrequent and patients are usually afebrile. The CSF is normal or nearly normal. PMLE causes white matter lesions.

Regarding CNS tumor, the most common metastatic tumors to the brain are lung, gastrointestinal, breast and kidney. The CT did not show obvious metastases and CSF cytology was negative. However, cytology is negative in 30-40% of patients with CNS tumors and 3 CSF samplings are recommended to rule out carcinomatous involvement. With his smoking history and hypoxemia, lung cancer is a possibility. Small cell lung cancer specifically is more likely to cause SIADH, more likely to metastasize to the CNS and can be associated with a paraneoplastic encephalitis (limbic encephalitis).

My primary clinical diagnosis is progressive multifocal leukoencephalopathy with aspiration pneumonia as a cause of hypoxemia. The diagnostic test would be a brain biopsy. However, my alternative diagnosis is small cell lung cancer with limbic encephalitis. In that case, the diagnostic test would be a bronchoscopy.

### *Diagnostic Procedure*

A right hilar mass was found on CT scan of the chest and bronchoscopic biopsies revealed small cell lung cancer. The patient was treated aggressively but expired. At autopsy, there was no evidence of encephalitis. Two micrometastatic foci were identified in the brain.

*Diagnosis:* Small cell lung cancer.

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## Marion E. Alberts, M.D.

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The Editor Comments



# Never Underestimate a Child

**A**NY PERSON WHO HAS CONTACT with children must be impressed by their thought processes. Be it a parent, a teacher, physician or casual acquaintance — all have experienced a child's impressions. Too often we do not give adequate credence to how children think . . . we assume we must think for them and they have only to accept our "mature and experienced" decisions. True, their thought processes may seem immature and unrealistic, but in the child's mind such is not so. I have marveled much at the examples of children's wisdom . . . their impressions of the actions of adults and concepts of happenings around them.

This issue of *IOWA MEDICINE* is devoted to pediatric medicine. It was my good fortune to be a pediatrician, a decision I have never regretted. From 1948 to 1988 I experienced many wonderful contacts with children . . . unfortunately some very sad times as well. A very ill child can drain the emotions of the conscientious pediatrician and the death of a child leaves a void in one's heart and soul which is slow to heal. I reflect upon these moments with nostalgia as well as gratitude that our paths met along the way of life.

Let me not be morbid about my experiences as a pediatrician. Instead I would like to share lighter moments which exemplify how children respond to their adult contacts. Be they worth a chuckle, or a bit of soul-searching, here are a few examples:

She was a beautiful little pre-schooler, filled with the vigors of her age, as she sat

on the examination table. Nearly exploding with the need to communicate her thoughts she exclaimed to me "Guess what happened at our house last night!" As I wondered if their dog had pups or a new television was delivered, she blurted, "Mother and Dad had a big fight and Dad packed a suitcase and left." How sad that her childish thoughts traveled in such a way, with no evidence of sadness or realization of the impact of the situation. I later learned the parents were divorced.

\* \* \*

He was an exuberant lad, about 5 years old, chattering constantly, seemingly in a mood to dare me to do anything to him. As I examined his throat I casually remarked, "Now I know the truth; you're full of baloney." I had hardly uttered that pronouncement, barely retrieving the tongue depressor in time, when he exclaimed . . . "No I'm not, my grandpa said I'm full of S—T!" I could hear the mother seated behind me gasp with embarrassment. I'm sure grandpa received an "earful" later that day.

\* \* \*

Some people are very ticklish. So it was with the boy I was examining. As he squirmed and giggled, I commented that I understood, but that I was not particularly ticklish. I added that my own children would tease me because the more they tried, the less response they got from me as they endeavored to make me squirm from their

(Continued next page)



tickling. Almost breathlessly the giggling boy said, "My dad's like that too, except when my mom puts her hands into his pants pockets." I could never look at that mother again without visualizing the antics which must have gone on in that home.

\* \* \*

On a sadder note, I shall never forget Billy, whose grandmother was dying from advanced metastatic cancer. Billy and I had become great pals. Because of various illnesses demanding frequent visits to my office we had a special relationship. At one visit he told me about his grandmother and then with tears in his eyes he quietly asked me to see his grandmother at the hospital because "you can make her well again." So sad, yet so full of a child's faith in his own physician. How difficult it was to explain that I could do little but hope and pray.

## Letters to the Editor

Dear Editor:

As an educational representative for a large pharmaceutical company I feel compelled to respond to recent articles written by Richard Caplan, M.D., on "Ethics in CME."

I applaud Dr. Caplan's concern and attention to maintaining the quality of continuing medical education in our state. The examples of unethical behavior in CME he stated are certainly worthy of our "rational" thought and personal discretion. Among these examples are several transgressions involving industry supported CME. In response, I would like to comment on the current approach of the Upjohn Company to the support of medical education, and suggest ways in which industry and medicine can work cooperatively to establish quality CME.

The Medical Sciences Liaison®-Education Unit was created by our company with the objective of providing credible support of medical education within the academic centers and the community. In order to minimize the extent of marketing in medical education, this unit was created as an auton-

\* \* \*

Beth was a real charmer . . . a 3-year-old beautiful child. Unfortunately we had to cause her pain by doing blood counts. Her tears could have melted a heart of stone. I never became oblivious to the tears of a child when my actions caused the pain. But Beth understood in a very revealing way. As she started to leave the examination room she turned back toward me, her arms open, and said "I love you, Doctor!" Tears nearly came to another pair of eyes as we hugged each other.

Children are beautiful. All "my children" have been a joy to me. They have taught me many of the realities of life. I wish them all happiness and good health during their remaining years. I love all of them.—M.E.A.

mous and distinct unit from our sales and marketing forces.

In the March issue of *IOWA MEDICINE* Dr. Caplan's column (which by the way is not directed to my company) addresses the sensitive issue of the pharmaceutical industry's support of travel and lodging expenses for educational programs. While I do not have an answer to this dilemma, I suggest we concentrate our efforts on identifying the education objectives of such meetings and not on the geographical climate or associated social functions. It is my sincere belief practitioners will continue to base their prescribing habits on the scientific issues and what is best for the patient, rather than on which company provides the best dinner and accommodations for them.

The responsibility of the pharmaceutical industry only begins with the development of new medications. It is of utmost importance that we insure these medications are appropriately utilized for specific disorders. When we work cooperatively with medicine to establish quality disease-oriented educational programs, industry begins to fulfill its obligations, the practitioner's skills are enhanced and ultimately the patient benefits. — David L. Keck, R.Ph., Medical Sciences Liaison®, The Upjohn Company.

## More on Peer Review

To the Editors:

Peer review can be a dilemma. Trying to determine quality of care is difficult when all that is before the reviewer is a summary of the patient's course. Certain assumptions are always made since the reviewer has not seen the patient and in many cases has not seen the chart. Unfortunately, it is quite easy to make incorrect assumptions.

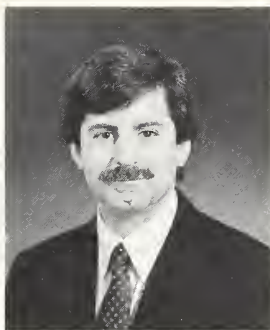
The IFMC and other review agencies have evolved a process whereby the first request for information is coupled with a judgement. The judgement is always that care was inappropriate. This "guilty-until-proven-innocent" attitude can be expected to evoke anger on the part of those physicians.

Reviewers should be reluctant to make judgements until all information is available. The interpretations of a great number of well managed local cases would have been easily cleared up had the chart and the physician been consulted first. In some cases, excellent physician documentation has simply been ignored.

A review committee should decide on the appropriateness of care only after they are satisfied that all information about a case is available. The entire chart should be reviewed by a physician whenever a negative judgement is contemplated. It is the responsibility of the reviewer, not the reviewed, to guarantee that all information has been considered.

The list of steps given in the February 1990 *IOWA MEDICINE* editorial on how to respond to a PRO inquiry misses the mark. It puts the responsibility for checking errors on the reviewed physician and not on the reviewers. It suggests that an inaccurate judgement should not be met with anger; that an incomplete analysis should be accepted as part of the territory.

I think we physicians have the right to demand the highest quality review possible. It can be helpful to point out the level of dissatisfaction that is felt. The last editorial suggests "We . . . accept the responsibility to keep Iowa providers of medical care well informed." Here's hoping that we can first be well reviewed. — *Michael J. Kelly, M.D., Davenport.*



Dr. Syrop



Dr. Hammitt

## Oops!

The *IOWA MEDICINE* editorial staff extends apologies to 1990 Scientific Session presenters Craig Syrop, M.D. and Diane Hammitt, Ph.D., both of Iowa City. In the Scientific Session program which appeared in the March magazine, their pictures were incorrectly identified. The pictures, with the correct identifications, appear above.

## It's All True — Almost

Let the facts and legends that follow be our contribution to CME:

William Osler, certainly one of the great doctors and teachers in the history of medicine, wrote to a friend while on vacation in 1901: "I have forgotten all about medicine and Doctors and my sole ambition in life now is to reduce my score at golf."

\* \* \*

In the night of Friday, December 13, 1799, George Washington became ill. The onset of his illness was characterized by a "violent ague" associated with throat pain, cough, difficult deglutition and labored breathing. The diagnosis by his doctors was "cynanche trachealis." He died at 11:30 p.m. on Saturday, December 14.

During that approximately 24 hour period, he was bled 4 times, received 3 doses of calomel, blisters were applied to his throat and later to the extremities, he inhaled vapors of vinegar and water, a poultice of bran and vinegar was applied to his

(Continued next page)



throat, he was given an enema and a total of 5-6 grains of emetic tartar was given by means of repeated doses.

Will we look any better than this 190 years from now? Probably not.

\* \* \*

Many of us grew up with cherry-flavored "Cheracol Cough Syrup," so it was no big deal when "Cherry Chap Stick" came along. Modern technology did not stop there, however. We now have "Tootsie Roll Lip Balm."

\* \* \*

In 1905, John Singer Sargent, one of the great portrait painters of his time, painted the famous group portrait *Four Doctors* (Osler, Halsted, Welch, Kelly — the 4 doctors who brought fame to Johns Hopkins School of Medicine).

Halsted and Sargent had several personality clashes, Halsted objecting to how Sargent was coloring the shadows under his eyes. Sargent finally scraped out and repainted Halsted's face to comply with his wish. "Sargent was quoted as saying that 'often the last laugh proves to be the best laugh.' "

Since then, a legend has grown that Halsted's face is gradually fading over the years, Sargent presumably having painted it in an inferior manner in retaliation.

Doubtless because of the legend, "The *Four Doctors* has been examined several times by conservators and art historians who have all denied that Halsted is fading." That's too bad. The legend was more fun.

\* \* \*

According to the 1986 edition of the *Guinness Book of World Records*, the 3 highest scoring members of the Mega Society (the most elite of IQ societies) each scored 197 on the Stanford-Binet scale. Of these 3, one was born in England, one in Canada and the third, Dr. Ferris Eugene Alger, was born in Des Moines, Iowa in 1913. He is not a physician, but he is alive and well and living in Pennsylvania.

Now for anthropophagy (cannibalism to you): A scientific expedition undertook this past summer, to resolve the remaining uncertainties of the Alferd Packer affair. In

1874, Packer and 5 companions were lost all winter in the mountains of Colorado. Only Packer survived. A subsequent jury trial found that he had murdered his 5 companions and eaten them.

Although discounted by historians, legend has it that the judge pronounced sentence with these words: "Stand up, yah man-eatin' son of a bitch and receive your sintince. They was siven Dimmycrats in Hinsdale County, but you, yah voracious, man-eatin' son of a bitch, yah eat five of thim! I sintince ye t'be hanged by th' neck until y're dead, dead, dead; as a warnin' ag'in reducin' the Dimmycratic popalashun of th' State."

Because of a legal technicality, Packer was never executed and was ultimately released from prison. So much for anthropophagy.

\* \* \*

Of the 56 who signed the Declaration of Independence, 4 were doctors.

\* \* \*

Question: What did Voltaire, Keats, Goethe, Descartes, Chopin, the Bronte sisters, Stevenson, Lanier, Kant, O'Neill, Dostoevski, Spinoza, Chekhov and Saint Francis of Assisi have in common? Answer: They all had tuberculosis, a disease which, it has been said, does not cause genius but "may fan into flame an otherwise dormant spark."

\* \* \*

What is the world coming to? In Des Moines, for instance, in recent memory, one black doctor has been chief of staff of both Mercy and Broadlawns Hospitals, 2 Catholics have been chief of staff of Iowa Methodist Hospital, a Moslem has been chief of staff of Mercy Hospital, Jews have been chief of staff of Mercy, Iowa Lutheran, and Iowa Methodist Hospitals, Protestants have been chief of staff of Mercy Hospital, and Mercy, for God's sake, even had a chief of staff who was a woman.

What is the point of all that? Just this: Whatever their faults, real or alleged, doctors are chipping away at the barriers of prejudice which preclude judging someone solely by his or her character and ability. — Daniel F. Crowley, M.D., Des Moines.

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## Clinical Tales

**I**S A CLINICAL TALE the same as a clinical history? Approximately. But we never take a patient's "tale," or relate a patient's "tale" to a consultant. That's likely because a tale connotes something rather more literary or even imaginary. Yet both involve a narrative sequence, the telling of a story. Is the tale perhaps more entertaining, the history more dull or utilitarian?

Since all physicians are involved with patients' stories, we'd likely achieve greater accuracy, interest and insight if we had more training as imaginative writers. Few of us — in fact, almost none — can be Chekhov, Doyle or Somerset Maugham — all physicians who were fabulous storytellers. The craft of successful writing — which illuminates, excites, inspires — is hard work. Few are willing to work with the necessary seriousness. But we can take a step in that direction by reading. I think reading *any* good literature is helpful. If nothing else, it expands our life experiences and that surely hones our skills in understanding others and relating to them effectively.

All medical journals and conferences present clinical tales. We commonly call them case reports. They are generally dull (a description the Duke of Wellington gave of Talleyrand, but then he added that occasional comments of the great statesman you would remember all your life). I shall always remember the fascinating case report I heard in 1981 about 5 young gay men in New York City who developed a curious form of Kaposi's sarcoma and shortly died of strange infections. There was yet no name or under-

standing for it, but a clear portent of great trouble.

Occasionally, physicians effectively generate clinical tales so lively they leap from the page into one's short and long-term memory. The current best exponent of this clinical art form is Oliver Sacks, a British-born neurologist working in New York. His book about his own experience as a patient, *A Leg To Stand On*, and his best-selling collection of neurological oddities, *The Man Who Mistook His Wife For A Hat*, hold one's attention powerfully, and thereby serve splendidly for instruction. His newest book, *Seeing Voices*, journalistically explores the world of the deaf — its culture, politics and the role of sign language and other educational modes for the deaf. Another book, also with an enticing title and highly absorbing case histories, is *The Boy Who Couldn't Stop Washing* by Judith Rapaport. If you hadn't known much about obsessive-compulsive disorder, you will after you read this.

An intriguing instance of a fictional report that is largely a composite clinical tale was told more than a century ago by the great American neurologist S. Weir Mitchell. Also an enormously successful novelist and poet of the day, his knowledge of nerve injuries and phantom-limb phenomena are still the basis of our knowledge. His name survives as an eponym for erythromelalgia. The immediacy and interest of the memoir, "The Case of George Dedlow," astound and instruct.

Any time you might give to reading these clinical tales deserves to be counted simultaneously for splendid entertainment and memorable CME. Would that all medical publications could be as good.

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Dr. Caplan is Associate Dean for Continuing Medical Education at the University of Iowa College of Medicine.

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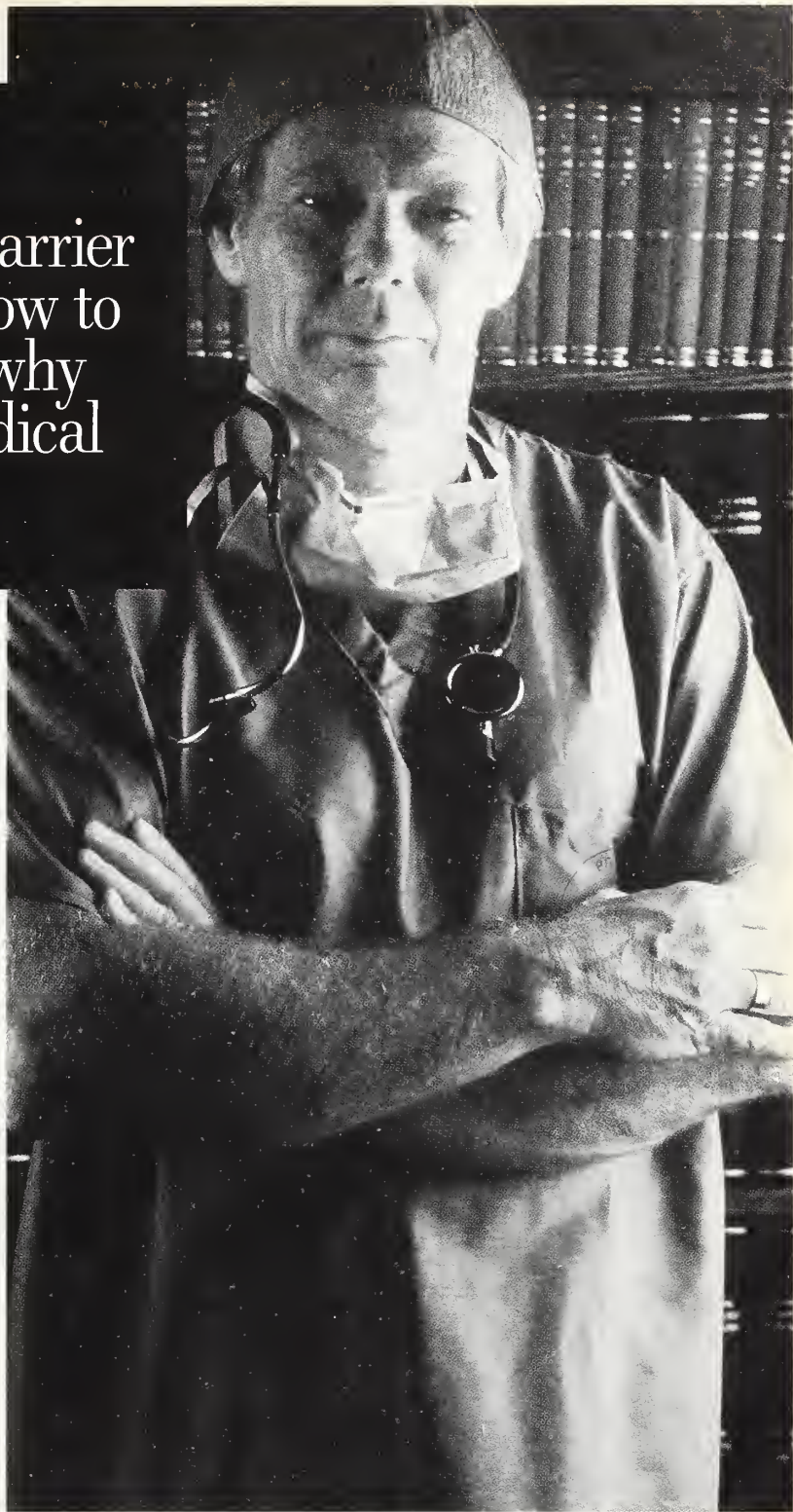
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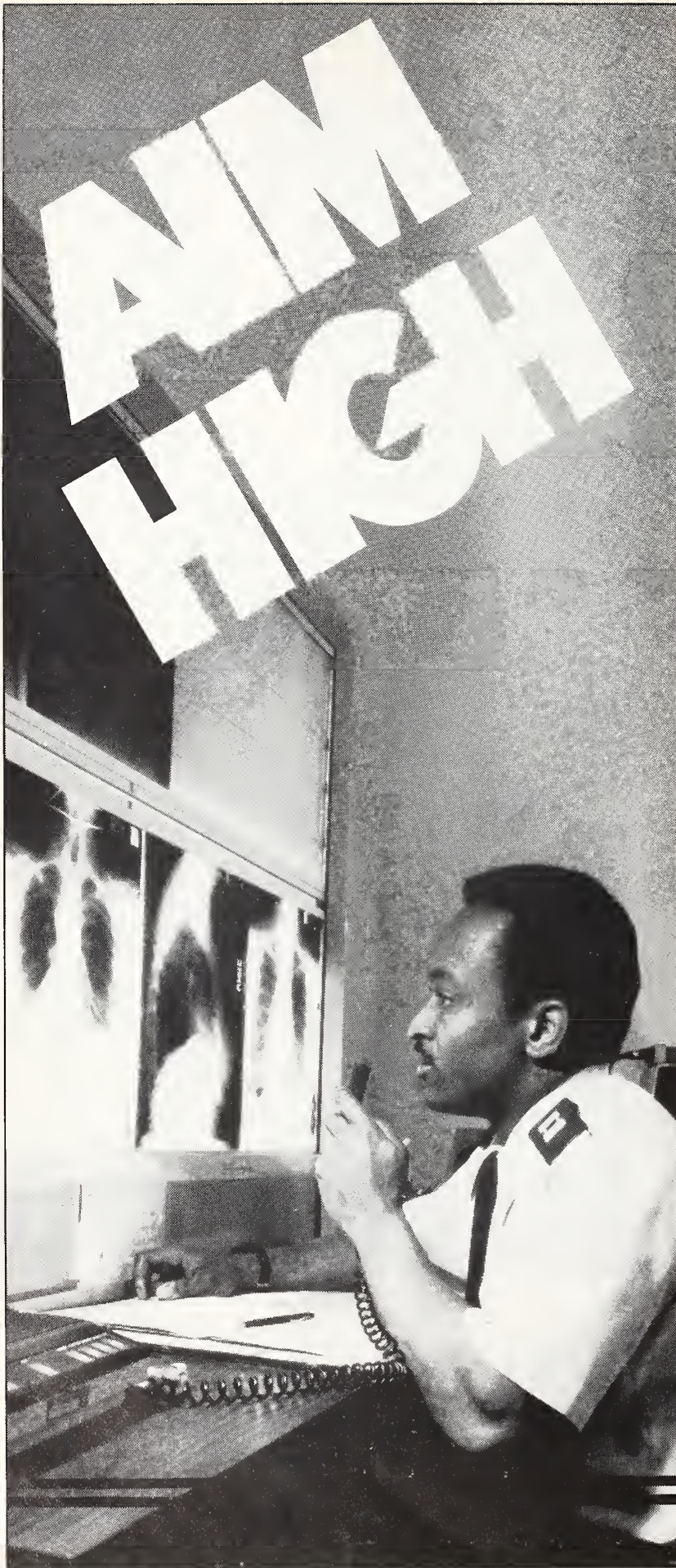
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# The "Roots" of Biomedical Ethics

**H**EALTH PROFESSIONALS AND OTHER interested people often question me about the interdisciplinary field of biomedical ethics. Sometimes the questions pertain to the historical development of the field: How and when did it get started? Who are the "big names" in the field?

My answer usually begins with a suggestion that the "roots" of biomedical ethics extend far back in our intellectual history. Although serious thinkers in earlier periods obviously could not have imagined the wonders of modern medical technology, many intellectual giants over the years wrestled with issues and developed important concepts that are still with us. Plato, Aristotle, Augustine, Thomas Aquinas, David Hume, Immanuel Kant, John Stuart Mill and others addressed questions that still challenge us.

These thinkers, representing a variety of philosophical and religious traditions, wrote about infanticide, suicide, mental health, the meaning of death, the relationships of physicians and patients, respect for persons, personal autonomy, limits to liberty and paternalism, the multiple ways of harming others and other perennial issues and themes. In so doing, they helped shape some of the intellectual terrain that comprises the contemporary field of biomedical ethics.

Other roots of biomedical ethics go back to the various codes of ethics developed by and for physicians over the centuries. The most famous of these codes, of course, is the oath that is part of the Hippocratic Corpus, dating from the fourth century B.C. A portion of that oath called for physicians in Greece to declare, "I will use treatment to help the sick according

to my ability and judgment, but never with a view to injury and wrong-doing."

Numerous other ethical codes of medical practice were developed over the centuries. The codes often provide interesting insights into changes in medical practice over time. For example, one of these codes, developed by Emperor Frederick II in Italy in 1240, took on the force of law and listed daily visits as one of the responsibilities of physicians: "A physician shall visit his patient at least twice a day, and at the wish of his patient once also at night." Another code, written by Arnald of Villanova in the 13th century A.D., included the following words of advice for physicians: "When you come to a patient you should always do something new lest they say that you cannot do anything without the books."

A number of codes of ethics have been adopted by various medical organizations over the past 150 years. The original version of "The Principles of Medical Ethics" was adopted by the AMA at its founding meeting in 1847 and was most recently updated in 1980. The "Declaration of Geneva" was adopted by the World Medical Association in 1948, with a revision in 1968. Other codes of ethics formulated by medical groups include the Constitution of the World Health Organization and the "Declaration of Helsinki" adopted by the World Medical Association in 1964 and revised in 1975.

I do not mean to place undue importance on these codes nor do I suggest the practice of every physician has been shaped by these codes. I am convinced, however, that numerous thoughtful, sensitive people in earlier times and different places have influenced the ethical practice of medicine and contributed to the contemporary field of biomedical ethics. In a future issue we will look at the more recent development of this interdisciplinary field.

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This column is written by Robert Weir, Ph.D., director of biomedical ethics for the University of Iowa College of Medicine.



## Your Practice and Risk

**E**VERYTHING HAS RISK. Yet, risk is not something that is easily understood or accepted. In fact, our inherent instinct is to avoid it. My old college dictionary, dated mid 1960s, defines risk as "the possibility or chance of loss or injury," and "a dangerous element or factor."

This definition certainly relates to a medical practice, no matter what the size or service. A medical practice is a business and has risk and should generate a "reward" for risk taken. Unfortunately, medical practices have not always been at the forefront in understanding, identifying and managing their risks.

How does a practice evaluate its risk? Prioritize the areas of your practice that are the most critical or which generate the most revenue. Then determine what factors could create a drop in revenue or other losses.

Once the major areas are covered, review the risk factors identified and the means which are available to reduce or alleviate these risks.

Remember risks can never be eliminated but identifying them is critical in managing your practice.

Insurance and legal advisors are appropriate sources of assistance and knowledge in this area. Yet, certain areas are not normally considered in a risk analysis, such as personnel issues, tax issues, employee benefit programs and business interruptions.

These areas are briefly summarized by the following:

- Your staff and personnel are the most significant cost a practice generally has but they contribute extensively to the reward and profit of an organization. However, the risks are sig-

nificant, employment and termination practices can trap the unwary. Practices and policies that discriminate create problems. Below market wages and benefits subject the practice to excessive employee turnover and morale problems.

- Employee benefit programs are normally perceived as positives and can be powerful motivators. Yet, there are hidden risks from the administration of these plans and the accountability and fiduciary responsibilities they require from the medical practice. The Department of Labor, ERISA and the IRS are all active "regulators" in these areas and offer a wide variety of penalties and notices to confuse and perplex the uninformed.

- Tax issues and concerns have historically been identified with risk, but now these risks have expanded from the income tax area to sales and use tax audits, payroll exams and a myriad of related reporting requirements.

- A final area is the business operation itself. The recent ice storm in Iowa and extended electrical interruptions highlighted the risk this can present to any business. The personal service nature of a medical practice and the increasing reliance upon communications and data processing systems make it very important these risks be identified and if possible, covered. Possible solutions could encompass a range of alternatives from the recovery of overhead costs via insurance to formal business interruption/disaster recovery plans. The key to this risk is identification and the ability to maintain a level of acceptable medical service to meet your patient's needs.

This article covered only some areas of risk for a medical practice. Remember the identification and management of risk is important in the maximization of the rewards and profits relating to your business.

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This article was written by Kevin Prust, a general service partner with McGladrey & Pullen, Des Moines.

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# Health Needs of Iowa's Children

**A** PRIMARY CONCERN of the Iowa Department of Public Health (IDPH) is the health care needs of Iowa children. The ultimate goal is to make certain low income children receive quality preventive and primary care on a regular basis.

Children from low income, uninsured or underinsured families tend to be a high-risk group because they are less likely to have access to consistent well-child care. Their health care is generally episodic and illness-oriented.

Iowa children, especially high-risk children, need improved access to health care; routine health screenings; hearing, vision and developmental screening; immunizations; nutritional and dental assessment and information; psycho-social assessment; parent education and information; and referrals to other resources and follow-up as needed. IDPH and the Maternal and Child Health Bureau ensure low income children receive needed health care by contracting with local child health centers across the state. Services are provided according to American Academy of Pediatrics guidelines, under the medical direction of a local physician.

Iowa children are eligible for health care at their local child wellness clinic. Services are free to families who meet certain low income eligibility guidelines or at reduced rates, depending on income.

Children and youth from low income families, as a group, have more undetected health problems and a higher than average incidence of chronic or disabling diseases. These fami-

lies, because of their few resources, are unable to purchase anything other than emergency medical care.

In addition, Medicaid-eligible children are eligible for EPSDT (Early Periodic Screening, Diagnosis and Treatment) services. EPSDT, a joint state and federal program, is an effort to improve the health status of children through age 21 from low income families.

EPSDT concentrates on preventive health care and combats the effects of untreated and undetected medical and developmental problems. EPSDT screening is a means to discover latent health problems, treat health concerns before they become serious and correct or minimize effects of these health problems. For a variety of reasons, some families may only bring their children in for initial baby shots and pre-kindergarten physicals required by schools. Meanwhile, health problems may be occurring that could keep the child from reaching the highest developmental level.

In an effort to enhance existing EPSDT programs, IDPH is in the process of implementing "case management" in 3 pilot counties. Counties involved are Cerro Gordo, Hardin and Mahaska, representing both rural and urban Iowa public health clinic participants.

Agencies providing child health services under the guidance of a local physician, for the above pilot counties are: North Iowa Community Action Program in Mason City, Mother-Child Wellness Program out of Grinnell General Hospital and American Home Finding Association out of Ottumwa.

In the pilot counties, case management will be a service, reimbursed by Title XIX, to



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**Action:** Yohimbine blocks presynaptic alpha-2 adrenergic receptors. Its action on peripheral blood vessels resembles that of reserpine, though it is weaker and of short duration. Yohimbine's peripheral autonomic nervous system effect is to increase parasympathetic (cholinergic) and decrease sympathetic (adrenergic) activity. It is to be noted that in male sexual performance, erection is linked to cholinergic activity and to alpha-2 adrenergic blockade which may theoretically result in increased penile inflow, decreased penile outflow or both.

Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage although they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalamic centers and release of posterior pituitary hormone.

Reportedly, Yohimbine exerts no significant influence on cardiac stimulation and other effects mediated by B-adrenergic receptors, its effect on blood pressure, if any, would be to lower it; however no adequate studies are at hand to quantitate this effect in terms of Yohimbine dosage.

**Indications:** Yocon<sup>®</sup> is indicated as a sympatholytic and mydriatic. It may have activity as an aphrodisiac.

**Contraindications:** Renal diseases, and patient's sensitive to the drug. In view of the limited and inadequate information at hand, no precise tabulation can be offered of additional contraindications.

**Warning:** Generally, this drug is not proposed for use in females and certainly must not be used during pregnancy. Neither is this drug proposed for use in pediatric, geriatric or cardio-renal patients with gastric or duodenal ulcer history. Nor should it be used in conjunction with mood-modifying drugs such as antidepressants, or in psychiatric patients in general.

**Adverse Reactions:** Yohimbine readily penetrates the (CNS) and produces a complex pattern of responses in lower doses than required to produce peripheral a-adrenergic blockade. These include, anti-diuresis, a general picture of central excitation including elevation of blood pressure and heart rate, increased motor activity, irritability and tremor. Sweating, nausea and vomiting are common after parenteral administration of the drug.<sup>1,2</sup> Also dizziness, headache, skin flushing reported when used orally.<sup>1,3</sup>

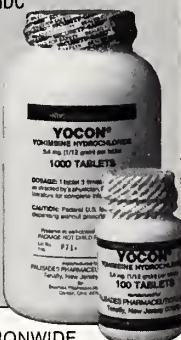
**Dosage and Administration:** Experimental dosage reported in treatment of erectile impotence.<sup>1,3,4</sup> 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.<sup>3</sup>

**How Supplied:** Oral tablets of Yocon<sup>®</sup> 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

#### References:

1. A. Morales et al., New England Journal of Medicine: 1221. November 12, 1981.
2. Goodman, Gilman — The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

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eligible recipients under 21 years old who are participating in an EPSDT child health program. Case management will involve assisting the participant's family appointment scheduling, babysitting, transportation and interpretation. Follow-up activities will ensure participants are making appropriate use of community medical services. Pilot projects are expected to augment existing EPSDT programs by proving early intervention saves future medical expenses and eliminates preventable health problems.

IDPH is moving toward adolescent primary health care clinical service models. The Maternal and Child Health Bureau office is in the process of receiving grant applications and expect to fund at least 2 projects in the state.

The primary health care models spring from results of a recent adolescent needs assessment. The assessment showed adolescents needed primary care services located near them, possibly in schools. An article concerning the adolescent needs assessment, "Responding to Adolescent Health Needs," appeared in *IOWA MEDICINE*, December, 1989.

IDPH also is working with the Iowa Department of Education to provide school based youth services programs under Chapter 66 of the Iowa Code. The Health Omnibus Act passed by the Iowa General Assembly in 1989 (HF535) proposes vital adolescent access to preventive and primary health care in or near school attendance centers.

For more information concerning health care for Iowa's children, contact the IDPH, Bureau of Maternal and Child Health.

## AN ACT OF LOVE

Denial that a respected colleague could be impaired and/or the conspiracy of silence that makes us unwilling to speak out allows the illness of our impaired colleagues to progress, sometimes to a fatal outcome.

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# New Products and Programs

**McNEIL INTRODUCES PRESCRIPTION IBUPROFEN FOR PEDIATRIC FEVERS** — PediaProfen™, and ibuprofen suspension product for use in treating fever in children 6 months and older, has received approval from the Food and Drug Administration. Ibuprofen, a nonsteroidal anti-inflammatory agent, was first marketed to adults in 1969 in Great Britain and in 1974 in the U.S. Available only by prescription, PediaProfen™ is marketed by McNeil Consumer Products Company, the manufacturer. PediaProfen™ has a 6 to 8-hour duration, which can mean fewer interruptions in a child's daily routine and during sleep.

**NEW SKIN CARE CREME WITH KERATIN BINDING FACTOR** — B. F. Asher and Company has announced the availability of the new 5th generation skin moisturizers, Pen-Kera®. The 1st generation products form a protective barrier against moisture loss. The 2nd generation group takes moisture from the environment. The 3rd generation alters the Keratin level, while the 4th generation forms a moisture layer on the surface of the skin. Now, the 5th generation of moisturizing products contain a Keratin binding factor which penetrates the skin, binding with tissue to restore the skin to normal moisture levels. Pen-Kera® creme combines all the generations of moisturizers in a fragrance-free, dye-free, paraben-free and non-greasy base to provide a solution to the problem of dry skin.

**NEW TREATMENT FOR SCHIZOPHRENIA** — In February, 1990, a major new antipsychotic drug for treating schizophrenia will be marketed by Sandoz Pharmaceuticals. Clozaril® (clozapine), a dibenzodiazepine, is indicated for patients who fail to improve on standard treatments. It appears to be superior to chlorpromazine in managing the symptoms of schizophrenia. Sandoz has developed an alliance with Caremark Inc., an affiliate of Baxter Healthcare Corp., for the delivery of this new drug. Clozaril® will be available solely from Caremark to closely control drug dispensing and patient monitoring.

**NEW DOSAGE FORM FOR PROSTATE CANCER** — Lupron Depot, a new once-a-month formulation of the drug Lupron® (leuprolide acetate), has been released recently by Abbott Laboratories. Lupron® is indicated for use in the palliative treatment of advanced prostate cancer. Prior to the new formulation, Lupron® had to be injected daily. Now the administration can be done more easily with better compliance.

**ACSH REVEALS FACTS AND MYTHS OF CORONARY HEART DISEASE** — *The Facts and Myths of Coronary Heart Disease and Its Prevention: A Consumer Guide* is the latest in a series of reports from the American Council on Science and Health (ACSH). This is not a dietary guide. It is an attempt to restore proper perspective on the problem of the leading cause of death in the Western World. For further information about this 40-page report, contact ACHS, 1995 Broadway, 16th Floor, New York, New York 10023-5860.

**SEEKING INTERESTED PHYSICIANS TO JOIN** — Physicians interested in the care of patients with chronic pain are invited to join the American College of Algologists (ACA). This organization promotes the development of a scientifically based bio-psycho-social approach to the patient with chronic pain. For further information contact Gay R. Anderson, M.D., Executive Secretary, ACA, 5410 Highway G, Winneconne, Wisconsin 54986.

**FDA APPROVES CONTINUOUS IV INFUSION** — The U.S. Food and Drug Administration (FDA) has approved the use of Tagamet® (brand of cimetidine) administered as a continuous intravenous infusion, SmithKline Beecham has announced. It is the only drug in its class to receive approval for dosing by continuous infusion. Continuous IV infusion of Tagamet® controls pH continuously for 24 hours, avoiding peaks and troughs in serum drug concentrations and provides appreciable cost savings to health care providers in the

*(Continued next page)*



hospital pharmacy and bedside. It is the most convenient and cost-effective method of intravenous administration. The cost savings result primarily from decreased pharmacy and nursing staff time for drug administration, particularly when Tagamet® is admixed in total parenteral nutrition (TPN) solutions. This regimen enables a reduction in fluid volume which is desirable in fluid restricted patients. Reducing the number of solutions administered also reduces the potential for error and the risk of infection. The continuous infusion dosage regimen for the ulcer patient requiring IV therapy is 900 mg/day (37.5 mg/hr). If a more rapid onset of action is desired, a loading dose of 150 mg or 300 mg can be used. Please read the full prescribing information before administering Tagamet® by continuous infusion or any other route.

**NEW CALCIUM CHANNEL BLOCKER INTRODUCED** — Procardia XL® (nifedipine) Extended Release Tablets have been cleared for marketing. Procardia XL® is the first once-daily calcium channel blocker indicated for the treatment of both angina and hypertension. It is also the first available prescription drug to utilize GITS (Gastrointestinal Therapeutic System), a novel drug-delivery system that provides relatively constant blood levels over a full 24-hour period with a single dose. Procardia XL® is marketed by Pfizer Laboratories, a division of Pfizer Inc. Usually, a patient taking Procardia® (nifedipine) capsules can be switched to an equivalent total daily dose of Procardia XL® (nifedipine) Extended Release Tablets without need of titration. For instance, a patient taking a 10-mg Procardia® capsule 3 times a day can be switched to one 30-mg Procardia XL® Extended Release Tablet a day. Subsequent dosage adjustments should be initiated as clinically warranted. Experience with doses greater than 90 mg of Procardia XL® in patients with angina is limited; therefore, doses greater than 90 mg should be used with caution and only when clinically warranted. Consult prescribing information for further data.

**SINGLE DONOR PLATELETS PROCEEDING BOOKLET NOW AVAILABLE** — *Single Donor Platelets: A Roundtable Discussion*, is now available from the Component Therapy Information Bureau. The booklet contains highlights of a discussion by industry experts who gathered in Chicago recently to share their expertise in the collection and use of single donor apheresis platelets for the treatment of pa-

tients with low platelet counts or abnormalities of platelet function. The proceedings booklet from the roundtable discussion contains information on: 1) The indications for single donor platelets; 2) blood center strategies for meeting the increased demand for single donor platelets; 3) platelet donor recruitment and retention; 4) productivity and efficiency measures for collecting single donor platelets; and 5) cooperative efforts between blood centers and hospitals to assure that the supply of single donor platelets will meet the demand. Free copies of the booklet are available from the Component Therapy Information Bureau, P.O. Box 620, Deerfield, Illinois 60015. Phone: 708/940-6400.

**NEW DIAGNOSTIC TEST FOR CHLAMYDIA** — Abbott Laboratories recently introduced a 15-minute version of its physician office diagnostic test, called TestPack Chlamydia, which is used to detect chlamydia infection in women. The development of this faster diagnostic test will enable patients to get test results with only one visit to a physician's office and begin any necessary treatment immediately. The U.S. Centers for Disease Control (CDC) recently released a report outlining new STD treatment guidelines. The report recommends physicians test women at risk to develop chlamydia.

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DISC Computer Systems, Inc. ....	278 A & B, 279
Hawkeye Medical Supply, Inc. ....	241
IMS Services .....	230
IMPAC .....	269
Iowa Methodist Medical Center .....	245, 246
IPMIT .....	283
Lilly, Eli & Company .....	234
Medical Computer Management, Inc. ....	258
Medical Protective Company .....	265
Mercy Hospital Medical Center .....	250, 263
Palisades Pharmaceuticals, Inc. ....	272
Prouty Company .....	257
Saint Joseph Hospital .....	232
U.S. Air Force .....	266
U.S. Army Reserve .....	256
Wolfe Clinic .....	249

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# About Iowa Physicians

**Dr. Anne Whitis** has joined the Family Medical Center, Oskaloosa. Dr. Whitis received the M.D. degree at the U. of I. College of Medicine and served her residency at the St. Joseph Mercy Hospital Family Practice, Mason City.

**Dr. Aaron Randolph** has retired after 36 years of medical practice in Anamosa. Dr. Randolph received the M.D. degree from the U. of I. College of Medicine. **Dr. Donald Skinner**, Lake City, has been elected president of the medical staff at Stewart Memorial Community Hospital. **Dr. David Archer**, Gowrie, was elected vice-president and **Dr. Philip Zimmerman**, Rockwell City, secretary. **Dr. James Potter** has joined the Park Clinic in Mason City. Dr. Potter received the M.D. degree from Creighton University School of Medicine, Omaha, Nebraska and completed a residency at Fitzsimmons Army Medical Center Department of Obstetrics and Gynecology, Aurora, Colorado. He previously practiced at the Munson Army Community Hospital in Fort Leavenworth, Kansas and in Evanston, Wyoming. **Dr. Luis Garcia**, Mason City and **Dr. Craig Thompson**, Strawberry Point, were honored by the Iowa High School Athletic Association's Board of Control. Awards were given to both physicians at the state high school boys basketball tournament in Des Moines for services they provide as team doctors for their local high school athletic programs. **Dr. Steven Eckstat**, a family practice physician at Mercy-Valley West Medical Clinic, has been elected president of the medical staff at Mercy Hospital Medical Center, Des Moines. **Dr. David Sweiskowski**, family practice physician at Mercy-Campus Medical Clinic, has been elected secretary/treasurer. Seven Mason City physicians involved in treatment of cancer patients have received approval to participate in a major national research and treatment program for prostate, bladder and urinary tract cancers. Accepted into the Eastern Cooperative Oncology Group are **Drs. Peter Silberstein, Walt Bate, Paul MacGregor, Steven Schurtz, Warren Wulfekuhler, Edwin Ken-**

**nedy and Martha Ryan. Dr. Yvon Baribeau** has joined **Dr. John Wiggans** at Cardiac Surgery Associates of Waterloo. Dr. Baribeau received the M.D. degree at the University of Montreal, Quebec, Canada and completed a residency in the University's surgery department. Dr. Wiggans received the M.D. degree from Indiana University School of Medicine, Indianapolis, Indiana and served his residency at Methodist Hospital, Indianapolis. The following physicians were elected to the North Iowa Medical Center staff: **Dr. Bohdan Wasiljew**, president; **Dr. Shivaram Shetty**, president-elect and **Dr. Phillip Lee**, secretary/treasurer. Elected department chairmen include: **Dr. R. Bruce Trimble, Dr. Michael Crane and Dr. Martin Schularick. Dr. Norval Saxton**, Iowa Lutheran Hospital medical director, was recently certified with a new specialty in medical management by the American Board of Medical Management. Dr. Saxton is one of only 2 physicians in Iowa certified in this specialty.

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## Deaths

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**Dr. Robert L. Knipfer**, 83, Waterloo, died February 14 at his home. Dr. Knipfer received the M.D. degree from the U. of I. College of Medicine and completed an internship at Butterworth Hospital, Grand Rapids, Michigan. He practiced in the Brandon and Jesup areas for 41 years, retiring in 1973 and was the founder and president of the Iowa Academy of Family Physicians in 1957-58.

**Dr. Hans Zellweger**, 81, Iowa City, died February 24 at his home. Dr. Zellweger received the M.D. degree from the University of Zurich, Zurich, Switzerland. He was professor emeritus, department of pediatrics at the U. of I. College of Medicine where he founded the Division of Medical Genetics and the Cytogenetics Laboratory.



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# Classified Advertising

**CLASSIFIED ADVERTISING RATE — \$3 per line, \$30 minimum per insertion. NO CHARGE TO MEMBERS OF IOWA MEDICAL SOCIETY. Copy deadline — 1st of the month preceding publication.**

**FAMILY PRACTICE —** BE/BC family practitioners to join our busy office in Glenwood, Iowa. Share call and receive support of the long established progressive Cogley Medical Associates, P.C. multispecialty group practice located in southwestern Iowa. Glenwood is a community of 6,000 located just 20 miles south of Council Bluffs. Great community, good schools yet close to metro area. Guaranteed first year salary, plus incentive with full range of benefits. Contact Richard Lehigh, Administrator, Cogley Medical Associates, P.C., 715 Harmony, Council Bluffs, Iowa 51503 or call collect 712/328-1801.

**SOUTHEASTERN IOWA —** Seeking full-time and part-time physician for new 50-bed hospital emergency department in southeastern Iowa. Attractive hourly compensation and malpractice insurance provided. Benefit package available to full-time physicians. Contact Emergency Consultants, Inc., 2240 S. Airport Road, Room 43, Traverse City, Michigan 49684, 1-800/253-1795 or in Michigan 1-800/632-3496.

**OSCEOLA, IOWA —** Weekend coverage available in emergency department of 48-bed hospital. Competitive hourly rate and malpractice insurance provided. Contact Emergency Consultants, Inc., 2240 South Airport Road, Room 43, Traverse City, Michigan 49684; 1-800/253-1795 or in Michigan 1-800/632-3496.

**MCCRARY-ROST CLINIC, P.C. —** Seeking 2 family physicians, one for the Gowrie office and one for the Lake City office. The group includes 9 family physicians, 2 general surgeons and one general internist in an environment to practice quality medicine balanced with a high quality of life. Call every tenth night with adequate time off for family and other interests. For more information contact Ed Maahs, Administrator or D. L. Christensen at 800-262-6230.

**MINNESOTA, LAKES AND TREES —** Family physician to join 5 others in progressive multispecialty group including internal medicine and surgery. Outstanding 42-bed district hospital with 130-bed long-term care facility. Excellent schools and services with easy access to metro area. Guaranteed salary, full benefits and bonus. Position available immediately. For confidential consideration and further information contact Mary Jo Cordes, MDsearch, P.O. Box 21507, St. Paul, Minnesota 55121. Call collect 612/454-7291.

**POSITION WANTED —** Board certified family physician seeks association with independent group practice in Des Moines area. Contact IOWA MEDICINE, Box 1591, 1001 Grand Avenue, West Des Moines, Iowa 50265.

**IOWA CITY, IOWA —** Seeking family physician to join 4 person group in private practice as our fifth partner retires. Excellent university community with opportunities to pursue many interests including fine arts and athletics. Income guarantee with incentive; option to become partner available after first year. For further information please send CV to IOWA MEDICINE, Box 1590, 1001 Grand Avenue, West Des Moines, Iowa 50265.

**MANKATO CLINIC, LTD —** is seeking BE/BC physician in the following specialties: allergy, dermatology, family practice, invasive cardiology, oncology, urology, ophthalmology, occupational/emergency medicine, pulmonology, general vascular surgery and general internal medicine. The Mankato Clinic is a 40-doctor multi-specialty group practice in south central Minnesota with a trade area population of 150,000. Guaranteed salary first year, incentive thereafter with full range of benefits and liberal time off. For more information, call Roger Greenwald, Administrator or Dr. B.C. McGregor at 507/625-1811 or write 501 Holly Lane, Mankato, Minnesota 56001.

**FAMILY PRACTICE —** BE/BC family practitioners to join 6 physician FP department in a long established progressive multispecialty group practice in southwestern Iowa. Support of 10 associated or affiliated surgical and medical specialties, yet free to practice full range of family medicine. Enjoy an outstanding medium-sized community quality of life within minutes of Omaha. Guaranteed first year salary, plus incentive with full range of benefits. Contact Richard Lehigh, Administrator, Cogley Medical Associates, P.C., 715 Harmony, Council Bluffs, Iowa 51503 or call collect 712/328-1801.

**FAMILY PHYSICIAN, MARSHALLTOWN, IOWA —** Six physician family practice group seeking additional BE/BC associate. Excellent guaranteed salary plus incentive and insurance with liberal vacation policy. Excellent community hospital with CT, MRI, Color Echo and invasive radiology. Contact James R. Burke, M.D., 112 East Linn, Marshalltown, Iowa 50158 or call 515/752-5469.

**GUTTENBERG, IOWA —** Scenic Mississippi River community in northeast Iowa needs BC/BE partner for busy 3 person family practice group. Competitive compensation package. Full day off each week, 6 weeks vacation. Group shares OB. Excellent surgeon in town, thriving hospital, modern clinic. Call Andrew Smith, M.D. collect at 319/252-2141 or 252-2232 after 5 p.m. Family Medicine Associates, Guttenberg, Iowa 52052.

**FAST BREAK TO YOUR FUTURE IN EMERGENCY MEDICINE —** If you are considering a career move and are emergency medicine residency trained and/or certified in family practice or other primary care specialties, contact us because we are interested in you. We are Emergency Medical Services, Inc., Kansas City, Missouri. Good things come in our package: challenging practice, advancement opportunities, scheduling flexibility, paid professional liability insurance and excellent compensation. You will love Kansas City: *Fortune* magazine does! *Fortune* ranked Kansas City the third "best" city in the nation for business. This may be one of the best kept secrets in America, because we have been successful and prosperous since 1975. We have opportunities available in the Kansas City metropolitan area and northwestern Missouri. For more information about a secure, permanent emergency medicine practice, with a spectacular future, contact Emergency Medical Services, Inc., 3101 Broadway, Suite 1000, Kansas City, Missouri 64111. Ask for H. L. Plost, M.H.A., 1-800/821-5147.

**IOWA PEDIATRICIAN** — To join busy pediatric department in young progressive multispecialty group. Enjoy outstanding, progressive medium-sized community quality of life within minutes of downtown Omaha. Competitive guaranteed salary and fringe benefits, plus incentives with full corporate membership after one year. Contact Richard Lehigh, Administrator, Cogley Medical Associates, P.C., Council Bluffs, Iowa 51501. 712/328-1801.

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**FAMILY PRACTICE PHYSICIANS** — Family practice physicians to join established clinic in progressive, family-oriented community of central Minnesota lakes area, good hunting and fishing, excellent educational system. Guaranteed salary and competitive benefit package. Contact Dr. Lewis Struthers or Mr. Erik Malchow at Parkers Prairie District Hospital, Parkers Prairie, Minnesota 56361 or call 218/338-4011.

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**ESTERVILLE, IOWA** — Seeking physicians in primary care specialties to provide weekend coverage at low volume emergency department in northwestern Iowa. Excellent compensation and paid malpractice insurance. Contact Emergency Consultants, Inc., 2240 South Airport Road, Room 43, Traverse City, Michigan 49684; 1-800/253-1795 or in Michigan 1-800/632-3496.

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**FOR SALE** — 35 cm flexible sigmoidoscope with light source. \$400.00. James R. Young, M.D. 319/277-6302.

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**SOUTHWESTERN IOWA** — Small, progressive hospital, in southwestern Iowa, seeking third family practice physician. First-year minimum income guarantee \$70,000, plus benefits. Omaha, Nebraska within hours drive. Specialists from Omaha provide clinics/backup. Call Wanda Parker, 800/221-4762 or collect 212/599-6200. E.G. Todd Associates, 535 Fifth Avenue, Suite 1100, New York, New York 10017.

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**MINNEAPOLIS/ST. PAUL AND SURROUNDING COMMUNITIES** — Offer practice opportunities for specialists in cardiology, dermatology, geriatrics, internal medicine, neurology, obstetrics and gynecology, oncology, ophthalmology, orthopedic surgery, pediatrics, rheumatology, surgery and locums. Contact Jerry Hess, LifeSpan Health Care Services, 800 East 28th Street, Minneapolis, Minnesota 55407; 612/863-4193.

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**FAMILY PRACTICE** — Family practice physician needed to join an established 14-physician state of the art clinic in a ranching community in South Dakota. Competitive salary guaranteed, plus generous tuition reimbursement-housing-transportation bonuses offered. Malpractice insurance covered. Limited call. Flexible schedule. Outdoor recreation abounds, including hunting, fishing, boating, skiing and golfing. Cultural opportunities: Allied Concert Series programs. Send resume or inquiries to Helen S. Lindquist, Administrator, Five Counties Hospital and Nursing Home, P.O. Box 479, Lemmon, South Dakota 57638. Telephone 605/374-3871.

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**EYE EQUIPMENT AVAILABLE** — Automatic chair with instrument console which accommodates a phoropter (Topcon), keratometer (Bausch & Lomb) and slit lamp (Haag Streit Bern). Also lensometer, trial case and projectoscope complete with slides. Contact Dr. Dwight G. Sattler, M.D., Kalona, Iowa. 319/656-2225.

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**PRIMARY CARE PHYSICIAN** — Marshfield Clinic is seeking a primary care physician to join its expanding 7-member emergency medicine department. Emergency medicine, urgent and ambulatory care, plus supervision and training of ER staff contribute to a very stimulating practice environment. More than 26,000 ER visits and 13,000 ambulatory care visits annually. Specialists representing all branches of medicine and surgery provide support care and services. Marshfield Clinic is a private group practice consisting of 350 physicians and is physically adjacent to Saint Joseph's Hospital, a 525-bed acute care teaching facility. Send curriculum vitae to John P. Folz, Association Director, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, Wisconsin 54449 or call collect at 715/387-5181.

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**SMALL HOSPITAL** — 45 minutes west of Minneapolis, has noted geriatric program. First-year minimum salary of \$50,000, plus 37% adjusted revenues, 4 weeks vacation, 2 weeks CME, 401(k) pension plan, malpractice. Lakeside community. Call Wanda Parker at 800/221-4762 or collect 212/599-6200.

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**GENERAL INTERNIST** — Marshfield Clinic, a multispecialty group practice with 350 physicians, is seeking BE/BC general internists to join its 30-member section in Marshfield and 3 expanding regional centers in northwestern and north central Wisconsin. An Internal Medicine Residency Program, University of Wisconsin Medical School affiliation and Medical Research Foundation contribute to a very stimulating practice environment. Positions offer strong economic stability combined with exceptional recreational, cultural and educational opportunities. Starting salaries up to \$92,100 with salary in 2 years up to \$116,400. Fringe benefit package is outstanding. Send C.V. to David L. Draves, Director Regional Development, 1000 North Oak Avenue, Marshfield, Wisconsin 54449 or call collect at 715/387-5376.

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**FAMILY PRACTICE** — Marshfield Clinic, a multispecialty group practice with nearly 350 physicians, is seeking BE/BC family practitioners to join expanding regional centers. Practice opportunities range in size from single specialty groups of 3 to multispecialty groups of 25. Positions available in 6 locations: 2 in northwestern Wisconsin within 70 and 90 miles of Minneapolis; 2 in northcentral Wisconsin within 80 and 90 miles of Lake Superior; and 2 in central Wisconsin within 25 and 35 miles of Marshfield. Full specialty consultation readily available. Positions offer strong economic stability combined with exceptional recreational, cultural and educational opportunities. Starting salary up to \$92,160 with salary in 2 years up to \$116,400. Fringe benefit package outstanding. Send CV and references to David L. Draves, Director, Regional Development, 1000 North Oak Avenue, Marshfield, Wisconsin 54449 or call collect at 715/387-5376.

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**INTERNIST** — Tremendous practice opportunity is available for one to two BC/BE internal medicine specialists in southeastern Wisconsin community of 18,000. Watertown, located within a one-hour drive of both Madison and Milwaukee, has a 103-bed, JCAHO accredited modern hospital. Over 30 active medical staff members for service area of 30,000 +. Presently one internist on staff. Financial support and office space is available. Please call Leo Bargielski, President, Watertown Memorial Hospital or Ed Hoy, M.D., 125 Hospital Drive, Watertown, Wisconsin 53094; 414/261-4210.

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**GENERAL INTERNIST WITH PSYCHIATRY INTEREST** — Marshfield Clinic multispecialty group practice with over 300 physicians is seeking a medical director for the inpatient psychiatry unit. A BC/BE internist with psychiatry experience is preferred. The medical directorship of the psychiatry unit is half time and the applicant may develop the other portion of practice to meet his or her practice interest. This could include a private practice or noncontinuity of care practice such as walk-in clinic, preop evaluation or employee health clinic. Starting salary is negotiable but very competitive and the fringe benefit package is outstanding. Send CV and references to David L. Draves, 1000 North Oak Avenue, Marshfield, Wisconsin 54449 or call collect at 715/387-5376.

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**GENERAL INTERNIST WITH INTEREST IN PREOPERATIVE EVALUATIONS** — Marshfield Clinic multispecialty group with over 300 physicians is seeking a BE/BC general internist to staff a Preoperative Evaluation Clinic. There is no hospital practice, night or weekend call. This is half time position and the applicant may develop the other portion of practice to meet his or her practice interests which could include staffing a walk-in clinic, employee health clinic or development of a private practice. Salary is negotiable but very competitive depending on the type of practice developed and the fringe benefit package is outstanding. Send references and CV to David L. Draves, 1000 North Oak Avenue, Marshfield, Wisconsin 54449 or call collect at 715/387-5376.

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**PEDIATRICIAN** — The Sterling/Rock Fall Clinic, a 31-physician multispecialty group, seeks a pediatrician to join 4 others. A senior pediatrician will retire once the new physician is established, assuring a very successful practice. Over 700 deliveries are performed yearly at a fully accredited 135-bed hospital adjacent to the recently remodeled clinic. High risk care is provided in Rockford, Peoria and Chicago. The twin cities of Sterling and Rock Falls offer excellent schools, friendliness and superior quality of life with easy access to 4 major Illinois cities as well as Wisconsin and Iowa. Excellent guarantee and benefits. For additional information call Jean Hollweck at Caswell/Winters 1-800/332-0488 or 414/359-1111 in Wisconsin.

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**NORTHWEST ARKANSAS** — Family practitioner BC/BE desired for a multispecialty clinic in beautiful resort town of Bella Vista. Exceptional opportunity for an office practice. The Ozarks offer mountains, lakes, friendly people and excellent schools. Salary guarantee, incentives and benefits. Contact Taylor Ransone, V.P., St. Mary-Rogers Memorial Hospital, 1200 W. Walnut, Rogers, Arkansas 72756 or call 501/636-0200.

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**ILLINOIS, ENT** — Take over practice of semi-retiring physician boasting excellent income, low overhead and diversified patient base. Located in comfortable midwest community of 80K draw in west central Illinois. Easy access to larger communities of 300K and Chicago. Supported by progressive 200+ bed facility. Excellent opportunity for professional and personal growth. Contact Mary Wynkoop, Tyler and Company, 404/641-6410.

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**JOHNSON & FALLS SEARCH ASSOCIATES** — Currently seeks physicians for positions locally and nationally. Explore new opportunities with medical professionals who are discreet and thorough. Be assured your CV will be handled in strictest confidence. There is, of course, no financial obligation to candidates. To initiate your search, please call or write Liz Johnson or Pat Falls, Johnson & Falls Search Associates, 34 Forest Dale Road, Minneapolis, Minnesota 55410 or call 800/828-6890.

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**OB/GYN, FAMILY PRACTICE, PEDIATRICS, INTERNAL MEDICINE, GENERAL SURGERY** — Attractive opportunities for BC/BE physicians in a variety of settings in Wisconsin, Indiana and Michigan (many on lakes). Contact Bob Strzelczyk to discuss your practice requirements and these positions. Strelcheck & Associates, Inc., 12724 N. Maplecrest Lane, Mequon, Wisconsin 53092; 1-800/243-4353.

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**PSYCHIATRIST BC/BE** — Full-time position. Join 2 board certified psychiatrists, one addictionologist and a full complement of other mental health professionals delivering ambulatory care and inpatient psychiatric consultations and therapy. Complex acute and long-term psychiatric patients are referred to other affiliated facilities. New inpatient substance dependency unit opportunities for program development. The Des Moines Department of Veterans Affairs Medical Center (VAMC) is a 273-bed acute medical surgical hospital with a large multispecialty outpatient program and residencies in medicine and surgery affiliated with the University of Iowa College of Medicine. Regular work hours and liberal fringe benefits. For information contact M. C. Eribal, M.D., Chief, Psychiatry Service, 515/271-5807. Apply to Personnel Service, VAMC, 30th and Euclid, Des Moines, Iowa 50310. EOE.

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## A Tragedy Unfolds

**"IT'S A MESS, IT'S TRAGIC, questions abound and solutions elude us."**

In a recent issue of the Polk County Medical Bulletin, this is how Dr. Patrick Reddin characterized the problem of crack cocaine and its effect on developing fetuses. As director of OB/GYN at Broadlawns in Des Moines, Dr. Reddin participated in a recent survey on use of street drugs by pregnant women.

"Early in 1987, 200 obstetric records at Broadlawns were surveyed regarding use of street drugs," Dr. Reddin wrote. "At that time, 12% gave a history of past or present use of one or more drugs. Now, 31% say yes to past or present use of marijuana, cocaine, amphetamines, opiates or hallucinogens."

The Broadlawns statistics on drug use by pregnant women are almost a mirror image of those nationwide. In a 1989 survey of 18 hospitals by the Select Committee on Children, Youth and Families, 15 hospitals reported the birth of children exposed to drugs had increased 4 times since 1985.

Many experts strongly suspect the actual number of drug exposed infants is under reported. Senator Lloyd Bentsen of Texas, chairman of the Senate Finance Committee, believes the tragic increase in the number of crack babies will also be an enormous public burden. He estimates the government will soon be spending \$15 billion annually to prepare cocaine-affected children to enter school.

In an article recently submitted to *IOWA MEDICINE* Iowa City physicians Don Van Dyke, M.D. and Susan Eberly, M.D. say cocaine has been linked to stillbirth, impaired fetal growth, preterm delivery, "significant impairment" of motor, orientation and regulatory behaviors, *abruptio placentae* and fetal malformations. Doctors now believe crack babies will have significant learning problems as older children.

"This problem has the potential to overload every system involved with the care of such children," say Drs. Van Dyke and Eberly.

Though physicians are attempting to collect data on crack babies, it's a slow process. Many of the women use multiple drugs and alcohol; the lifestyle of the women is not conducive to cooperation in the studies.

Iowa physicians are aware of the growing problem of crack babies and are attempting to acquire the knowledge to deal with it.

At the 1989 IMS Annual Meeting, delegates passed a resolution to cooperate with the Iowa Department of Public Health to develop a bank of information on maternal and fetal health threats posed by crack abuse. The IMS Maternal and Child Health Committee will be reviewing various legislative proposals.

Iowa's obstetricians are in the process of formulating guidelines for coping with the alarming increase in the number of crack babies; the Iowa Chapter, American Academy of Pediatrics has several proposals it hopes to bring to legislators' notice.

Based on experience, physician specialty groups and other experts say a punitive approach such as jailing pregnant cocaine users will keep such women from seeking prenatal care. Crack babies are a health problem, not a criminal justice problem, doctors say.

Meanwhile, physicians and researchers continue trying to collect the facts that will help society help crack babies.

"Factual evidence is being collected — albeit slowly — evidence we need to guide intelligent intervention," Dr. Reddin concluded in his article. "Better slow facts than fast speculation."

May 1990

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Iowa Medicine

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June 1990

Journal of the Iowa Medical Society

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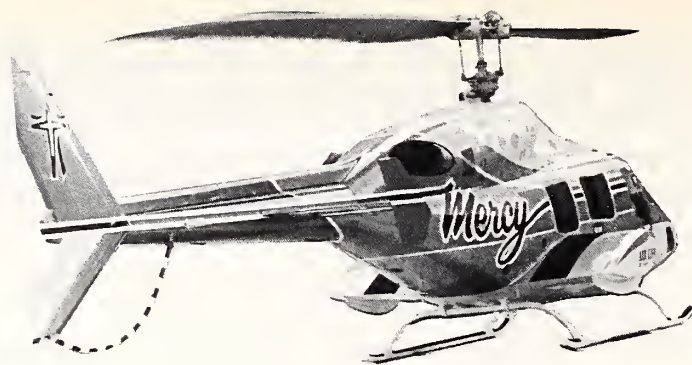
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# In This Issue

## Departments

- 291 President's Privilege
- 299 Recent Books
- 305 The Editor Comments
- 306 CME Notebook
- 309 IFMC Case Notes
- 310 Practice Management
- 313 Iowa Department of Public Health
- 315 About Iowa Physicians
- 322 In the Public Interest

## Special Articles

- 292 **Neurologic Complications of AIDS**  
*Not all neurological disorders suffered by AIDS patients are secondary to immune deficiency — some are attributable to HIV infection of the nervous system.*  
**James Bale, Jr., M.D.**
- 296 **Neurology Advancing at 'Breakneck' Speed**  
*Due to rapidly developing technology, neurologists face the most complex ethical issues on a daily basis.*  
**James Corbett, M.D.**

## Scientific Article

- 301 **Cerebral Sinus Thrombosis Reconsidered**  
*An interesting case involves a 43-year-old woman with a cough and nasal congestion.*  
**Erich Streib, M.D.**

## About the Cover

IMS staff member Becky Roorda took this month's cover photo on a recent hiking trip in Nepal. The man in the photo, a teacher traveling to his western Nepal village, posed at a rest stop in the valley of the Seti Khola river.



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Dr. Holwick outside of hospital where she practices as a civilian traumatologist.



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### **References**

1. *USP DI Update*, September/October 1988, p 120
2. *Br J Clin Pharmacol* 1985;20:710-713
3. Data on file, Lilly Research Laboratories
4. *Scand J Gastroenterol* 1987;22(suppl 136):61-70
5. *Am J Gastroenterol* 1989;84:769-774

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2. Dosage should be reduced in patients with moderate to severe renal insufficiency.

3. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

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**Carcinogenesis, Mutagenesis, Impairment of Fertility**—A two-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a two-year study in mice, there was no evidence of a carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given

an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a two-generation, perinatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

**Pregnancy—Teratogenic Effects—Pregnancy Category C**—Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect; but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in one fetus, and at 50 mg/kg, it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in one fetus. There are, however, no adequate and well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

**Nursing Mothers**—Studies in lactating women have shown that 0.1% of an oral dose is secreted in human milk in proportion to plasma concentrations. Because of growth depression in pups reared by treated lactating rats, a decision should be made whether to discontinue nursing or the drug, taking into account the importance of the drug to the mother.

**Pediatric Use**—Safety and effectiveness in children have not been established.

**Use in Elderly Patients**—Healing rates in elderly patients were similar to those in younger age groups as were the rates of adverse events and laboratory test abnormalities. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

**Adverse Reactions:** Clinical trials of varying durations included almost 5,000 patients. Among the more common adverse events in domestic placebo-controlled trials of over 1,900 nizatidine patients and over 1,300 on placebo, sweating (1% vs 0.2%), urticaria (0.5% vs <0.01%), and somnolence (2.4% vs 1.3%) were significantly more common with nizatidine. It was not possible to determine whether a variety of less common events was due to the drug.

**Hepatic**—Hepatocellular injury (elevated liver enzyme tests or alkaline phosphatase) possibly or probably related to nizatidine occurred in some patients. In some cases, there was marked elevation (>500 IU/L) in SGOT or SGPT and, in a single instance, SGPT was >2,000 IU/L. The incidence of elevated liver enzymes overall and elevations of up to three times the upper limit of normal, however, did not significantly differ from that in placebo patients. Hepatitis and jaundice have been reported. All abnormalities were reversible after discontinuation of Axid.

**Cardiovascular**—In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in two individuals administered Axid and in three untreated subjects.

**CNS**—Rare cases of reversible mental confusion have been reported.

**Endocrine**—Clinical pharmacology studies and controlled clinical trials showed no evidence of antiandrogenic activity due to nizatidine. Impotence and decreased libido were reported with equal frequency by patients on nizatidine and those on placebo. Gynecomastia has been reported rarely.

**Hematologic**—Fatal thrombocytopenia was reported in a patient treated with nizatidine and another H<sub>2</sub>-receptor antagonist. This patient had previously experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

**Integumental**—Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

**Hypersensitivity**—As with other H<sub>2</sub>-receptor antagonists, rare cases of anaphylaxis following nizatidine administration have been reported. Because cross-sensitivity among this class has been observed, H<sub>2</sub>-receptor antagonists should not be administered to those with a history of hypersensitivity to these agents. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

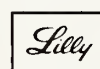
**Other**—Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine have been reported.

**Overdosage:** Overdoses of Axid have been reported rarely. If overdosage occurs, activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis for four to six hours increased plasma clearance by approximately 84%.

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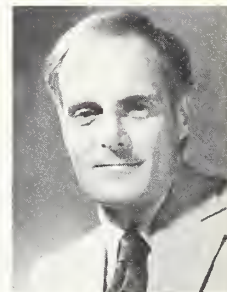


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## Robert Whinery, M.D.

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President's Privilege



# Did You Take Part?

ON A WARM, SUNNY SUNDAY a few weeks ago we celebrated Earth Day, 1990. As we all know, this was a day with profound environmental ramifications. It's also a day which can impact significantly on the future health of our citizens.

A number of Iowa physicians missed a portion of Earth Day while deliberating important health care issues at the Iowa Medical Society House of Delegates. I hope many of the physicians not present at the annual IMS Meeting were able to participate in Earth Day. It was a beautiful Iowa spring day which gave each of us a chance to "communicate" with our surroundings.

Earth Day was also a chance for physicians to be more than just "docs." I cannot stress enough the importance of being involved members of our communities. There are many ways for us to give to our communities. I hope we may use occasions such as Earth Day to join our neighbors in important endeavors outside of our medical practices.

Iowa has great doctors. For medicine's future, we must also be great citizens!

This issue of *IOWA MEDICINE* deals with neurology, a specialty which treats patients with catastrophic physical and mental conditions or those causing prolonged or progressive deterioration. Because of the nature of their practices, neurologists must have a special quality of patient empathy — personal knowing and caring. I salute my colleagues in this specialty and trust the rest of you will learn much from this month's issue.

This is the inaugural edition of my President's Privilege column. I will try my best to carry on the tradition of excellence set by my predecessors.

A handwritten signature in dark ink that reads "R. Whinery, M.D." The signature is written in a cursive, flowing style.

Robert Whinery, M.D.  
President



# Neurologic Complications Of AIDS

JAMES BALE, JR., M.D.  
Iowa City, Iowa

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***AIDS patients are at risk for a wide variety of neurologic disorders. Diagnostic and treatment considerations are discussed.***

---

**A**LTHOUGH AIDS UNDOUBTEDLY EXISTED prior to 1980, the disease entity was not recognized by the medical community until the summer of 1981, when the CDC received unusual reports of *Pneumocystis carinii* pneumonia and Kaposi sarcoma in young homosexual men.<sup>1</sup> Gottlieb, Massur, Siegal and their co-workers described 19 patients who had unexplained immunodeficiency and opportunistic infections or Kaposi sarcoma, a dermatologic malignancy usually affecting elderly individuals.<sup>2, 3, 4</sup>

By early 1983, over 1,000 cases had been reported in the U.S. and several foreign countries.<sup>5</sup> Although several hypotheses were proposed to explain this bizarre epidemic, certain epidemiologic features (notably the strong association between the disorder and homosexuality or intravenous drug use) led researchers to postulate that the

causative agent was most probably an infectious pathogen. In 1983, this hypothesis was confirmed when investigators in France and the U.S. linked AIDS to infection with a human retrovirus, now known as the human immunodeficiency virus type 1 (HIV-1).<sup>6, 7</sup> By 1989, over 100,000 cases of AIDS had been reported in the U.S. alone.<sup>8</sup>

As a retrovirus, HIV-1 contains RNA as its genetic material and replicates via a DNA intermediary (hence the designation "retro" virus).<sup>9, 10</sup> Retroviruses contain an RNA-dependent DNA polymerase (reverse transcriptase) that initiates production of HIV-1 DNA (or provirus) that integrates itself with host cell DNA. HIV-1 then relies on host cell synthetic activity to produce new infectious virions. An important feature in the pathogenesis of HIV-1 infection and AIDS is the ability of HIV-1 to remain latent in human cells for extended periods. The events that lead to activation of HIV-1, such as intercurrent viral infections or up-regulation by host cytokines, are currently the focus of intense investigation.

To infect human cells, HIV-1 relies on the CD4 molecule, a glycoprotein present on helper T lymphocytes and monocytes, important constituents of human cell-mediated immunity. Monocytes harbor latent or replicating HIV-1 and disseminate HIV-1 to various tissues, including the brain. HIV-1 infection of T4 lymphocytes induces dysfunction or lytic infection (i.e. cell death). When HIV-1 infects large numbers of T4 lymphocytes and monocytes, patients experience defective cell-mediated immunity, a crucial event in the pathogenesis of AIDS.<sup>9</sup>

---

Dr. Bale is an associate professor in the Departments of Pediatrics and Neurology, University of Iowa College of Medicine. Adapted from Bale, JF: Viral encephalitis. In RJ Joynt, ed. *Clinical Neurology*, J.B. Lippincott, Co. Philadelphia, 1990.

## Neurologic Complications

As the numbers of persons affected by AIDS grew, investigators recognized AIDS victims were at risk for neurologic disorders affecting virtually any level of the neuroaxis. Early reports focused on neurologic disorders secondary to HIV-1-induced immune deficiency, but by 1985 researchers confirmed HIV-1 also caused neurologic dysfunction directly via infection of neural tissues.<sup>11-13</sup> Consequently, the neurologic disorders associated with AIDS can be divided into 2 categories: disorders that occur secondary to HIV-1 induced immune deficiency and disorders attributable to HIV-1 infection of the nervous system (Table 1).<sup>14, 15</sup>

Because HIV-1 induces defects in cell-mediated immunity, many different infectious pathogens can cause encephalitis, meningitis, brain abscess, myelitis or polyradiculitis.<sup>14, 15</sup> Cerebral toxoplasmosis, one frequent CNS complication, produces headache, lethargy, focal neurologic signs, seizures or signs of increased intracranial pressure.<sup>16, 17</sup> Cryptococcal, candidal and tuberculous meningitis, other common opportunistic CNS infections, are associated with fever, malaise, headache and meningeal signs, hydrocephalus or focal deficits.<sup>11, 14, 15, 18</sup>

Infections with members of the herpes-virus group, particularly cytomegalovirus (CMV) and the varicella-zoster virus (VZV), have been among the more frequently encountered viral infections.<sup>15, 19-21</sup> CMV commonly infects AIDS patients, particularly homosexual men; in one autopsy series, nearly 50% had evidence of CMV infection of various tissues.<sup>20</sup> CMV can produce meningitis, encephalitis, myelitis, retinitis or peripheral neuropathy.<sup>19</sup> CMV infects the retina in approximately 10% of AIDS victims, producing visual loss that can progress to complete blindness when untreated.<sup>22</sup> Patients with CMV encephalitis experience fever, headache, lethargy, personality change or focal deficits.

AIDS victims are also at risks for progressive multifocal leukoencephalopathy (PML), a CNS demyelinating disease caused by the JC papovavirus.<sup>23, 24</sup> The clinical features of PML consist of personality change, cognitive decline or focal neurologic deficits that begin insidiously. Patients with PML

TABLE 1  
NEUROLOGIC MANIFESTATIONS OF AIDS<sup>1</sup>

- 
- |  |
|--|
| I. Disorders Linked to HIV                               |
| 1. aseptic meningitis, acute or chronic                  |
| 2. AIDS dementia complex (subacute encephalitis)         |
| 3. vacuolar myelopathy                                   |
| 4. Guillain-Barre syndrome                               |
| 5. chronic inflammatory demyelinating polyneuropathy     |
| 6. mononeuritis multiplex                                |
| 7. myositis  |
| II. Disorders Secondary to HIV-induced Immunosuppression |
| A. Infectious  |
| 1. Parasitic   |
| a. Toxoplasma meningoencephalitis                        |
| 2. Viral   |
| a. cytomegalovirus (CMV) retinitis                       |
| b. CMV meningoencephalitis                               |
| c. CMV myelitis  |
| d. progressive multifocal leukoencephalopathy            |
| e. herpes simplex virus (HSV) myelitis                   |
| f. HSV encephalitis (rare)                               |
| g. varicella zoster virus encephalitis                   |
| h. segmental zoster                                      |
| 3. Fungal (meningitis and/or brain abscess)              |
| a. Cryptococcus neoformans                               |
| b. Candida species                                       |
| c. Coccidioides immitis                                  |
| d. Aspergillus species                                   |
| e. Histoplasmosis  |
| 4. Bacterial   |
| a. Mycobacterium tuberculosis meningitis                 |
| b. Listeria monocytogenes meningitis                     |
| c. gram negative meningitis (e.g. E. coli)               |
| B. Non-infectious  |
| 1. Neoplastic  |
| a. primary CNS lymphoma                                  |
| b. metastatic lymphoma                                   |
| c. Kaposi's sarcoma (very rare)                          |
- 

<sup>1</sup>Modified from Elder and Sever, and Fischer and Enzensberger.

typically lack fever or other signs of infection and usually progress to complete debility and death over a period of several months.

Non-infectious neurologic complications of AIDS include cerebrovascular disease and primary or metastatic neoplasms, particularly lymphomas.<sup>11, 14, 15</sup> Recent data suggest primary CNS lymphoma develops in approximately 2% of adult AIDS victims.<sup>25</sup> Patients with CNS lymphoma experience memory loss, mental status changes, focal neurologic deficits and seizures. Metastatic lymphomas can involve many levels of the neuroaxis, including the leptomeninges, and produce focal or multifocal signs.

Direct HIV-1 infection of neural tissues leads to many different neurologic syn-

(Continued next page)



dromes, including encephalopathy (AIDS dementia complex), aseptic meningitis and vacuolar myelopathy.<sup>11,14, 15, 26-30</sup> The Guillain-Barre syndrome, chronic inflammatory demyelinating polyneuropathy, sensory neuropathy, mononeuritis multiplex and myositis are among the other neurologic and neuromuscular conditions directly linked to HIV-1 infection.<sup>31, 32</sup>

Adult AIDS dementia, a severe, disabling complication of AIDS, typically begins with an insidious decline in cognitive and motor abilities.<sup>26-29</sup> Memory loss, apathy, reduced ability to perform complex intellectual tasks and dyscoordination of gait or handwriting are early clinical features. Progressive dementia, loss of motor and speech abilities, complete debility and death ensue over a period of weeks or months. By contrast, HIV-1 infected persons without signs of AIDS retain normal cognitive abilities.<sup>33</sup>

HIV-1-induced aseptic meningitis may occur as a self-limited illness accompanied by fever, headache and meningeal signs.<sup>14,15</sup> Cranial nerve palsies or long-tract signs can be present and occasional patients have a chronic relapsing course. Patients can develop aseptic meningitis coincident with seroconversion to HIV-1, indicating this syndrome may indicate acute HIV-1 infection. Patients with HIV-1 induced myelopathy usually have progressive paraparesis, often associated with the AIDS dementia complex.<sup>30, 34</sup>

Children with AIDS also experience neurologic complications due to HIV-1-induced immunodeficiency or due to HIV-1 directly. The most devastating complication has been the progressive encephalopathy observed in HIV-1 infected infants and young children.<sup>35-37</sup> This syndrome, analogous to the AIDS dementia complex of adults, causes an insidious decline in motor or intellectual functions, loss of developmental milestones and acquired microcephaly. Approximately 20% of such children have seizures and an occasional child exhibits cortical blindness.

### ***Diagnostic Considerations***

In HIV-1 infected patients with neurologic symptoms, the diagnostic evaluation should focus on the clinical symptomatology and the known complications of AIDS. Be-

**TABLE 2**  
**CT and CSF Findings in CNS Complications of AIDS**

<i>Disorder</i>	<i>CT</i>	<i>CSF</i>
AIDS dementia (adult)	progressive atrophy	normal; elevated protein, lymphocytic pleocytosis
AIDS encephalopathy (children)	atrophy; calcifications of basal ganglia	normal; elevated protein, lymphocytic pleocytosis
HIV meningitis	usually normal	elevated protein, lymphocytic pleocytosis
Toxoplasma meningoencephalitis	enhancing lesions, multifocal (usual) or single	variable; elevated protein mononuclear pleocytosis
Cryptococcal meningitis	normal; enlarged basilar cisterns, basal granulomas (rare)	elevated protein, lymphocytic pleocytosis, reduced glucose
Progressive multifocal leukoencephalopathy	white matter hypodensity	normal; mild protein elevation
Cytomegalovirus encephalitis	normal; white matter lesions, subependymal enhancement	elevated protein, lymphocytic pleocytosis
CNS lymphoma	diffuse isodense or hypodense enhancing lesions, variable edema	normal; elevated protein, malignant pleocytosis

cause many secondary complications are associated with cerebral or spinal pathology, neuroimaging studies, computed tomography (CT) and magnetic resonance imaging (MRI) have an important initial role in the evaluation of AIDS victims. Subsequent diagnostic studies can include examination of the cerebrospinal fluid, electrophysiologic studies and occasionally, brain biopsy. Table 2 summarizes the CT and CSF findings in various neurologic diseases observed in AIDS patients.

Because of the many infectious complications, patients with AIDS require an extensive microbiological evaluation. This can include examination of various body fluids or tissues for viruses, bacteria, fungi or parasites. CMV infection can be established by isolating the virus from urine or CSF. Toxoplasmosis infection can be supported by a positive toxoplasma IgM, a dye test exceeding 1:1024 or a 4-fold rise in serum toxoplasma IgG titers. Cryptococcal meningitis

can be established by culture, India ink staining or antigen analysis of CSF; however, the latter studies may be negative in proven infection. Brain biopsy remains the only definitive diagnostic strategy for certain conditions such as PML or CNS lymphoma.

In primary HIV-1 meningitis, the CSF features consist of a mononuclear pleocytosis, elevated protein content and normal glucose content. By contrast, the CSF in the adult AIDS dementia complex can be normal or show non-specific elevations in the protein content. Children with progressive encephalopathy frequently have normal CSF profiles. In many HIV-1 induced neurologic syndromes, HIV-1 antigen or antibodies to HIV-1 can be detected, and expression of HIV-1 antigens in CSF may correlate with the severity of the neurological syndrome.

### ***Treatment and Prognosis***

Therapeutic strategies for AIDS patients should involve treating secondary complications and providing palliative therapy for HIV-1 infection. Several infectious complications will respond favorably to antimicrobial therapy. Toxoplasmosis can be treated with combined therapy with pyrimethamine, sulfadiazine and folinic acid, and fungal infections, such as cryptococcal meningitis, may respond to amphotericin B or fluconazole. Serious CMV infections such as encephalitis or retinitis, should be treated with ganciclovir and VZV infections will usually respond favorably to therapy with acyclovir. Lifelong maintenance drug therapy is required after remission of cerebral toxoplasmosis or CMV retinitis.

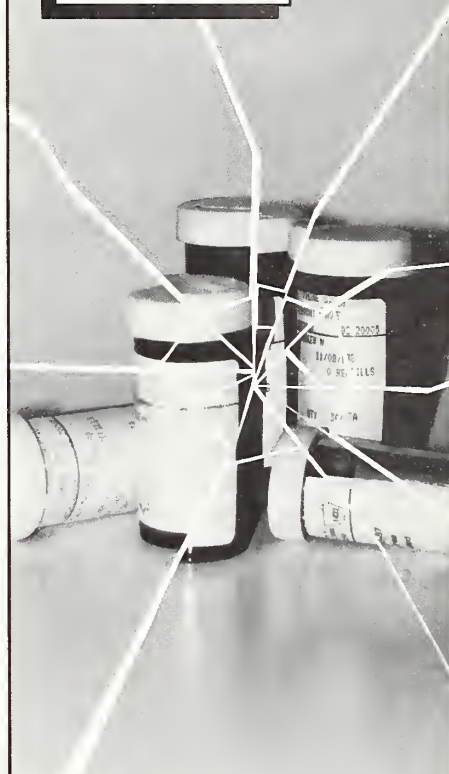
Of the antiviral agents that might be used to treat HIV-1 infection, zidovudine [azidothymidine (AZT)] has been the most thoroughly studied to date. This drug inhibits replication of HIV-1 and has led to immunologic and neurologic improvement in symptomatic AIDS victims.<sup>38, 39</sup> In a double-blind study of nearly 300 patients with AIDS or AIDS-related conditions, AZT-treated patients had a lower mortality rate and fewer opportunistic infections.<sup>39</sup>

### ***References***

References noted in this article are available either from the author or the editors of *IOWA MEDICINE*.

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<sup>2</sup> A Study of Attitudes, Concerns, and Information Needs for Rx Drugs and Related Illnesses, CBS Television Network Consumer Model Survey, 1983



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**James Corbett, M.D.**

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Questions and Answers



## Neurology Advancing at 'Breakneck' Speed

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*The author, secretary-treasurer of the Iowa-Midwest Neurologic Association, discusses that organization's activities and the unprecedented speed with which advances are occurring in neurology.*

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**What is the picture with regard to the supply of neurologists? Is there a surplus or a shortage?**

The answer depends on who is being asked the question and what kind of work a neurologist is being called upon to do. A 1980 study by the Graduate Medical Education National Advisory Council (GMENAC), estimated a need for 5,000-6,000 neurologists by 1990 and predicted there would be about 8,650 neurologists by that time. The GMENAC estimation of the number of neurologists was remarkably accurate, since 1988 AMA statistics showed 8,663 physicians classified themselves as neurologists in the United States at that time.

A 1977 report performed by a Joint Commission on Neurology of the American Academy of Neurology and the American Neurologic Association estimated a need for 12,000-13,000 neurologists by 1990. A Delphi panel was convened to complete the work started by GMENAC and their estimates ranged between 10,000-27,000 neurologists, with an average of 14,500 neurologists needed by 1990. Thus, depending on whose numbers you use, there are either too many or not enough neurologists at the moment.

Part of the estimate depends on whether neurologists are seen solely as consultants with no primary patient care responsibilities. The English and Canadian systems require fewer neurologists because they are used only in consultation and refer patients back to their primary physicians for management. In the United States, neurologists are primary caregivers for many patients such as those with epilepsy, myasthenia gravis, multiple sclerosis and Parkinsonism.

In 1987, there were 127 approved neurology training programs in the United States; from 1984 to 1990, it was estimated that between 2,400-3,000 trainees would graduate from these programs. Since neurology's rebirth following World War II, the number of programs has steadily increased. About 25% of the neurologists now in practice are under age 35.

Among the many factors that determine the supply of neurologists are: the number of neurologists in academic medicine who do not provide full-time patient care; constraints placed on neurological practice by organizations such as PPOs and HMOs; the populations being served and the number of persons who are boarded in neurology and psychiatry and split time between the 2 specialties (a rarity today). Some segments of the population are underserved, such as Blacks and Hispanics, and these groups are increasing. For such populations there may be too few neurologists while for others there may be too many. Our aging population and the increasing frequency with which degenerative diseases are being recognized will require a larger cadre of neu-

rologists for diagnostic and therapeutic interventions. At the present time, I believe no practicing neurologist is at a loss for work.

**What are the objectives of the Iowa Midwest Neurologic Association?**

The Iowa Midwest Neurologic Association arose in 1979 to serve educational and collegial purposes. We meet 4 times a year at the University of Iowa and listen to guest lecturers present cases. Recent speakers have included neuro-oncologists, specialists in muscle and nerve and movement disorders. There are 66 members from Iowa and a few from western Illinois, southwestern Wisconsin and Nebraska. Illinois, Wisconsin and Minnesota also have neurologic associations; our organization is especially vigorous.

**What are the current concerns of neurologists with regard to present and future practice environment?**

The anticipated loss of referrals because of CT and MRI scanning has not materialized. While imaging techniques do not provide answers to all neurologic questions, access to these new imaging techniques, evoked potentials, electromyographic and electroencephalographic procedures is being threatened by third-party payors. This is particularly unfortunate since neurologists have become highly dependent on these techniques for the elucidation of many neurologic problems.

**What role is the Association playing in educating patients about head and brain stem injuries?**

The Iowa Midwest Neurologic Association is developing a speakers panel to provide information to lay organizations regarding the effectiveness of seat belts and helmets in the prevention of major head injury. The financial drain on society and the havoc wreaked on families as a result of major head injuries needs to be impressed upon members of the state legislature. The loss of tax revenue when the patient can no longer be gainfully employed and the tax money spent maintaining and rehabilitating patients who are severely head-injured, paraplegic or quadriplegic as a result of such accidents are an enormous toll on society. Also, the families of such individuals are almost always seriously disrupted, further taxing overworked social agencies. The need for stiffer penalties for drunken driving, effective

legislation for persons who fail to use seat belts and a new helmet law for motorcyclists are supported by the Association.

**What major medical ethics issues are of concern to neurologists?**

Brain death and the care of patients in vegetative comas are ethics issues that involve neurologists on a daily basis. Even more vexing are the problems of establishing competency after neurological defects and counseling patients at risk of developing genetic diseases. The ability to provide an early diagnosis of conditions such as Huntington's disease regularly involves neurologists and is particularly troubling since no treatment for Huntington's disease is available.

The ethical issues involved in transplantation of fetal tissues for Parkinson's disease are far reaching. The recent birth of a child who was conceived by the parents to provide bone marrow for a leukemic sister puts transplantation on ethical review. Finally, a problem not confined to neurologists is the erosion of quality of care because of third party payment policies.

**What recent technological and scientific advancements have affected clinical neurology?**

Obviously, the development of magnetic resonance imaging and computerized tomography in the last 15 years has revolutionized clinical neurology. They provide us with the ability to do "autopsies" in living patients. The current resolution of MR is down to 1 mm in the plane of section and we can reconstruct the brain in thin slices of only a few millimeters. In addition, the need for myelography has diminished as a result of the availability of MRI and CT of the spinal cord. Three-dimensional reconstruction of the brain and the bones of the skull allows us to assess congenital anomalies better than before. Evoked potentials provide us with electrophysiologic confirmation and identification of the location of lesions that we were hitherto unable to clearly localize.

The impact of basic science in clinical medicine is exemplified by the development of a cohesive view of myasthenia gravis. Myasthenia gravis has benefited by basic research on alpha-bungarotoxin, found in the Many-Banded Krait, a poisonous snake. This toxin

*(Continued next page)*



binds to acetylcholine receptors. The immunopathology of the thymus gland, the abnormal proteins secreted by T-lymphocytes, and the binding of alpha-bungarotoxin to acetylcholine receptors, have provided us a clearer understanding of a complex autoimmune disease. The use of plasmapheresis, steroids and the development of positive pressure respirators make the care of thymectomy patients a breeze compared to 20 years ago.

A multitude of drugs have appeared for the treatment of movement disorders, and in particular, the development of L-dopa and the recent appearance of Deprenyl in the treatment of Parkinson's disease have given hope to these patients. Baclofen and dantrolene have aided in the treatment of spasticity.

In the last 20 years, a host of prophylactic medications for the treatment of migraine have appeared, including beta-blockers, calcium channel blockers, tricyclic antidepressants, non-steroidal anti-inflammatory agents and anti-serotonergic drugs. Neuroimmunology, neuropharmacology and epidemiologic tech-

niques are providing us with clinical information that may lead us to a clearer understanding of diseases we treat.

Serendipity also plays a role. Consider MPTP and the development of experimental Parkinson's disease as the unwanted side effect of illegal drug production in California, or the neuroepidemiologic investigation of Guamanian ALS and discovery of the excitatory amino acid BMAA. These open the door for epidemiologic studies of environmental chemical toxins in the production of neurologic disease. Advancements in clinical sciences, imaging and basic science have come together to cause major changes in the way we treat patients with neurologic disease.

In general, it can be said as neuroscience advances at breakneck speed, exploring the nervous tissue from molecules to the higher brain functions, we will see greater changes in the way we conceptualize, diagnose and manage neurological diseases. The clinical enterprise is no longer separable from the scientific effort.

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## Decade of the Brain

The Decade of the Brain, officially launched this year through a declaration from President George Bush, is hailed by the American Association of Neurological Surgeons (AANS) and the Congress of Neurological Surgeons (CNS) as an unprecedented opportunity for Americans to learn about preventing and treating diseases of and injuries to the brain, spinal cord and nerves.

In America today, there are about one million people suffering from head and spinal cord injury as a result of trauma and almost 2 million people have had a stroke of some type. These disorders cost Americans almost \$16 billion and untold suffering to the victims and their families. Three million people are known to suffer from Alzheimer's Disease at a cost of \$50 billion.

The AANS and CNS plan to address specific disorders of the brain and spinal cord each year with a goal of covering the broad scope of neurosurgical research and treatment by the end of the decade.

On June 19, the AANS and CNS will hold a conference for science and health writers, reporters and editors. It will include an overview of the function of the brain and spinal cord, a discussion of spinal cord injury, an overview of stroke and a look at future treatments.

The AANS and the CNS represent 4,500 U.S. neurological surgeons. The 2 organizations sponsor the award-winning National Head and Spinal Cord Injury Prevention Program.

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## Recent Books

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Snider, Howard C., Jr., 1989, *Jury of My Peers: A surgeon's encounter with the malpractice crisis*, Fountain Press, Montgomery, Alabama. This well-written, gripping saga of a surgeon's experiences with a malpractice lawsuit is a must for all. The reader should allocate an evening for this book, because once into this true story it is hard to lay aside. The emotions of the surgeon are vividly described and the ramifications of the legal process are continually apparent. This book is highly recommended to all physicians.

Beuerman, Roger W., Craig E. Crosson and Herbert E. Kaufman, editors, 1989, *Healing Processes in the Cornea*, Volume 1 of a series entitled *Advances in Applied Biotechnology*, Gulf Publishing Company, Houston, Texas, \$65.00. This is a study that will have its primary impact upon ophthalmologists and chemical researchers. Much research has been done on the process of corneal wound healing, much of it is summarized in this book. There are numerous black and white photographs, charts, and graphs and extensive references. This is one book in a series of books relative to applied biotechnology.

Spodnik, Jean Perry and David P. Cogan, 1989, *The 35-Plus Good Health Guide for Women*, Edward Burlingame/Harper & Row, New York, New York, \$19.95. A dietician and an internist team up to provide a guide for women over 35 years of age to take charge of their health. The early chapters address the importance of medical checkups and how to rate the competency of health professionals. There are chapters devoted to the various organ system changes that occur in the 35-plus years. Mid-life reproduction and sexuality are discussed. Another section deals with cancer updates and prevention. The final chapters address the importance of good nutrition and awareness of a sedentary life-style. The book is written in a manner that should provide easy and worthwhile reading for the maturing woman.

Bombeck, Erma, 1989, *I Want to Grow Hair, I Want to Grow Up, I Want to Go to Boise: Children Surviving Cancer*, Harper & Row, New York, New York, \$16.95. This author needs no introduction. Her style of writing is a delight to all who read her books and daily newspaper column. Now, she presents a remarkable insight to the feelings of children afflicted with cancer. There are anecdotes with humorous touches, some which tug at the heart strings. Through it all she relates the hope and courage demonstrated by children with cancer. This book should be read by every physician, parent with an afflicted child and school teacher — for that matter anyone who wants an insight to the lives of child cancer victims. A bonus: the author's proceeds from this book in the U.S. are assigned to the American Cancer Society's national research program.



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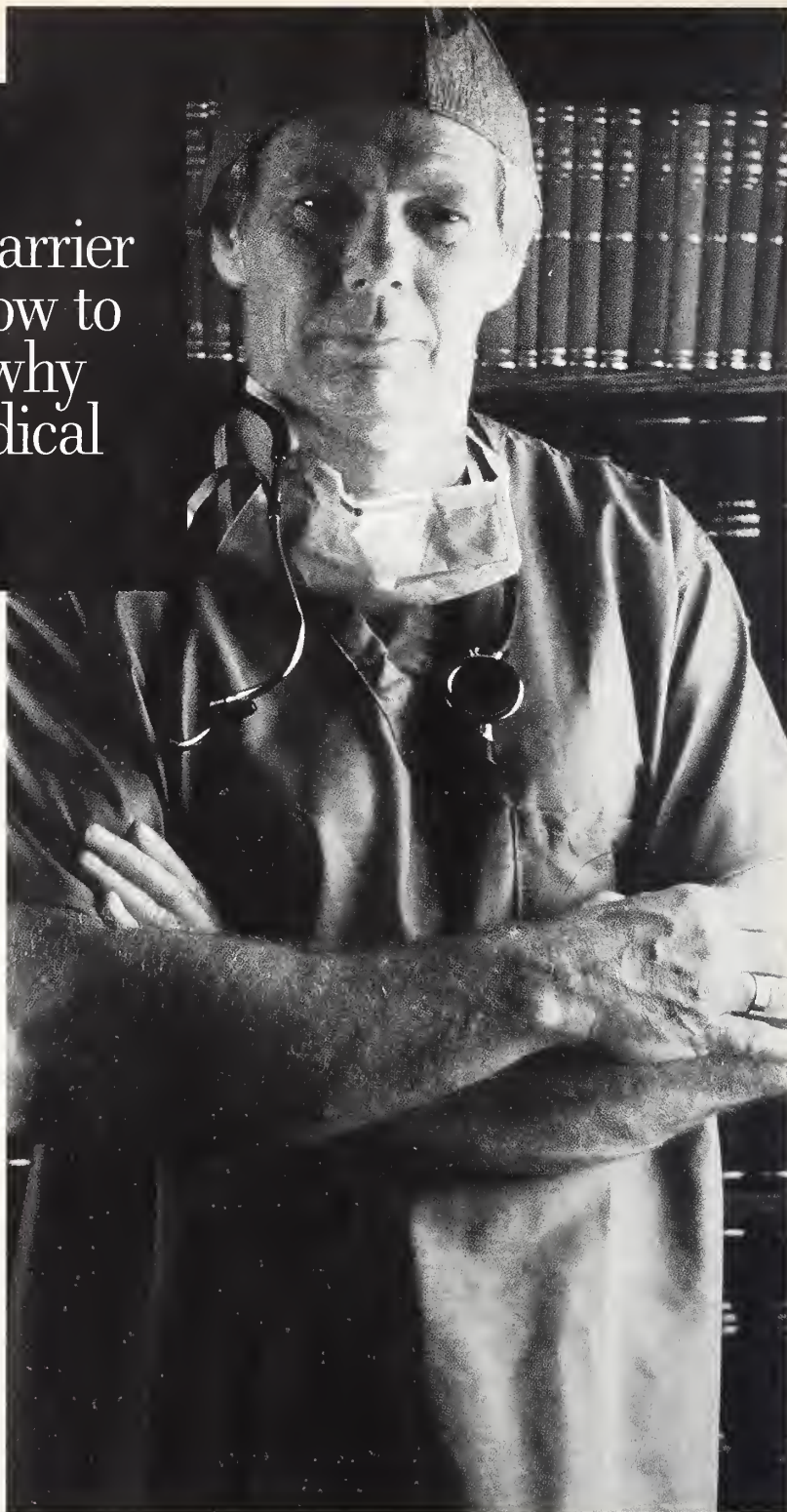
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# Cerebral Sinus Thrombosis Reconsidered

ERICH STREIB, M.D.  
Cedar Rapids, Iowa

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***Severe headaches or strokes in young patients could be a clue to thrombosis of the large intracranial sinuses.***

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**M**ODERN NEURODIAGNOSTIC CAPABILITIES have vastly improved the diagnosis of neurological conditions. A representative example is thrombosis of the large intracranial sinuses. This condition probably occurs more commonly than appreciated and should be considered in young persons with severe headaches and/or stroke.

The following case report raises the diagnostic index of suspicion. The case report should also discourage widespread and indiscriminant diagnosis of sinus headaches.

## ***Case Report***

A 43-year-old woman developed cough and nasal congestion. She was treated with oral sulfonamides. These were followed by oral

tetracyclines with no improvement. Six days after onset she awoke in the morning with a severe headache, nausea and vomiting. There was little relief from parenteral narcotics and she continued to have dry heaves. She was afebrile, CBC was normal, pulse 84 per minute and blood pressure 120/80. Neurologic screening was normal.

An initial CT scan of the head was normal except for the presence of maxillary sinusitis. She was admitted with a diagnosis of acute sinusitis and placed on IV fluids and IV antibiotics. Her headaches worsened; she became increasingly agitated and intermittently confused, screaming about severe headaches. Five days after IV antibiotics had been started she became disoriented with left hemiparesis.

Neurologic evaluation revealed a drowsy woman who had difficulty with attention but was oriented when aroused. There was a left spastic hemiparesis with a Babinski sign. No papilledema was present. EEG revealed diffuse slowing. An LP revealed an opening pressure of 430 mm H<sub>2</sub>O, protein content of 59 mg/%, 3 mononuclear WBCs and 3 RBCs.

Repeat CT scan revealed tentorial contrast enhancement on the right side and an empty delta-sign (Figure 1). Subsequently cerebral angiography confirmed the diagnosis of sagittal sinus thrombosis (Figure 2). The patient remained intermittently confused with mild spastic left hemiparesis and impairment of cognitive function but eventually made a good recovery. She did not develop seizures or ra-

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Dr. Streib practices neurology with Neurological Associates in Cedar Rapids.

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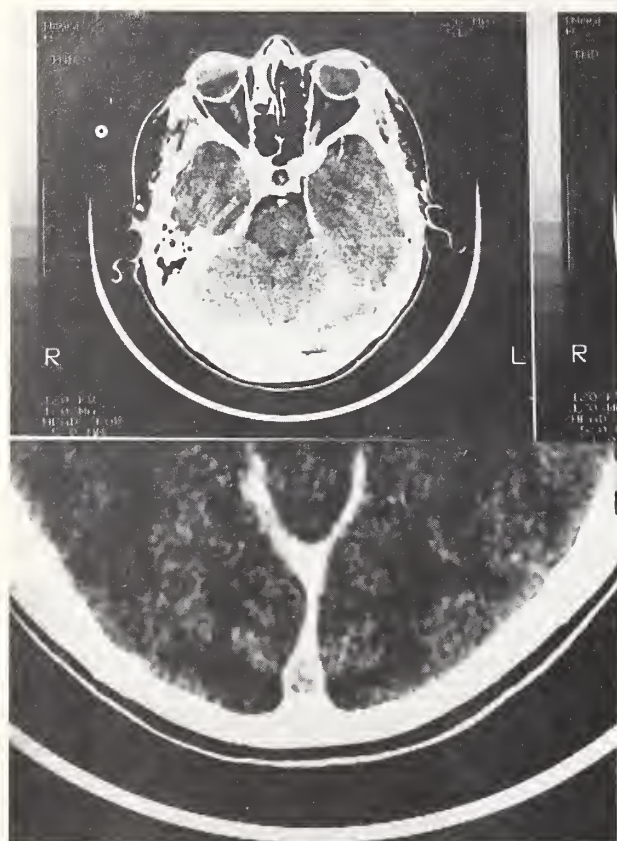


Figure 1. CT scan view of blood clot in cerebral sinus (so called DELTA-SIGN).

diological signs of intracerebral hemorrhage or infarct. Workup for possible hypercoagulability or collagen vascular disease was negative. She was not placed on anticoagulation.

## Discussion

This patient further contradicts the widespread myth that chronic sinus disease causes frequent headaches.<sup>2</sup> Localized pain to forehead or cheek may occur in patients with acute sinusitis at which time there is associated fever and local tenderness.<sup>2</sup> Only spreading of the infection to the cavernous sinus causes a catastrophic neurologic illness.

The clinical diagnosis of venous sinus thrombosis is frequently missed unless a high index of suspicion exists.<sup>1, 3, 7</sup> It should be considered in young patients with "stroke and severe headaches" and patients with papilledema and focal neurological signs. Initial symptoms usually consist of severe headaches, nausea and vomiting. Within hours focal or generalized seizures and hemiparesis



Figure 2. Cerebral angiography VENOUS PHASE. Note absence of filling of sagittal sinus.

may occur. Parasagittal infarcts or hemorrhage or even frank subarachnoid hemorrhage may be demonstrated and become the source of neurological impairment.<sup>1, 4, 6</sup>

Cerebral venous thrombosis occurs in cachectic conditions, widespread malignancies, dehydrated neonates or infants and in any condition causing a hypercoagulable state.<sup>1, 3, 7</sup> In adults it is most commonly found during pregnancy, the postpartum state, contraceptive medication and systemic malignancy. It has been thought a relatively rare and frequently fatal illness, but more recent reports suggest a much better prognosis with relatively low mortality rate. This may be due to earlier and more frequent recognition of mild cases using modern neurodiagnostic procedures.

CT scan with contrast is the diagnostic procedure of choice.<sup>3, 6</sup> Representative of a clot in the sinus is the empty triangle or so called delta sign (Figure 1). This must be present on several cuts of film to be diagnostic. Less frequent are diffuse gyral or pronounced tentorial enhancement as in our patient. Ventricles are often small, reflecting the generalized increased intracranial pressure in this condition. Since many of these CT-signs are nonspecific and may be altogether absent, a suspected diagnosis of sinus thrombosis should always be confirmed by cerebral angiography which is still the diagnostic gold standard (Figure 2).

A definite etiology was never identified in our patient. We abstained from anticoagulation since she did reasonably well. Use of an-

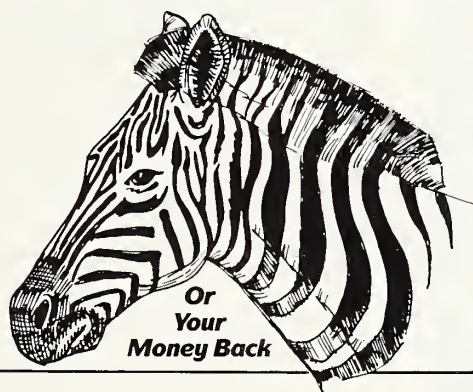
ticoagulation has been a continued controversial issue.<sup>5</sup> In patients with septic sinus thrombosis and evidence of intracerebral bleed, contraindication is generally agreed upon. The use of intravenous heparin in patients without these complications has been promoted by some authors.<sup>5</sup>

There are no precise answers at this time and therapy for venous sinus thrombosis remains empirical and should be tailored to the individual patient.

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Tables should be numbered and typed on a separate sheet. They should supplement, not duplicate, the text. Considering the production cost of tables and photos, only a limited number can be accepted with each article.

Photos should be black and white glossy prints. Some color photos are acceptable if the contrast is good.

Line drawings are acceptable if they are dark and can be reduced to fit in one column.

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Marion E. Alberts, M.D.

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The Editor Comments



## Mixed Messages

CIGARETTE SMOKERS IN CALIFORNIA will pay the \$28.6 million bill for an advertising campaign designed to convince up to 75% of smokers in that state to quit by the year 2000. Anti-smoking ads over the next 15 months were mandated by California voters who approved a heavy cigarette tax. The bill will also give \$140 million in cigarette tax funds to public schools and health agencies to develop further educational programs about the hazards of smoking. It has been estimated the tobacco industry in 1988 spent \$3.2 billion to promote tobacco use.

There has been some decline in the use of tobacco in the U.S., yet the statistics show an increase in use by younger females. The ads by tobacco industry are aimed less at "macho" man and more to women in order to increase sales.

The use of alcohol is another case in point. Drunken driving is a menace that plagues us. The devastation of innocent persons by people who drink and drive is a national scandal. Furthermore, the health problems of those addicted to alcohol accounts for expenditures of millions of dollars for medical care.

Many lawmakers are reluctant to control more stringently the use of alcohol. We have read in the papers the lament of state officials when sales of liquor decreased. After all, the decline in sales of liquor leads to a decline in state revenues, and that seems to be more important to some of our elected and appointed state officials.

Again in California, a proposition is up for vote this fall for a heavy increase in taxes on beer, wine and spirits. Recently enacted "health labels" on alcoholic beverages may cause a decline in consumption.

The use of tobacco and liquor are but 2 problems we face in Iowa. Another increasing problem is gambling. Compulsive gambling is a curse upon the victim and all those around that person. Recently I saw the television advertisement about a service to help compulsive gamblers followed in less than 5 minutes by an "invitation" from the State of Iowa to buy a lottery ticket. Later the same evening there was another ad by the multi-state Lotto-America. The admonition resounded "You can't win if you don't play." The same evening there was a news story about the horse track subsidized unwillingly by the tax payers of Polk County, Iowa. Isn't it a paradox that our government supports gambling in such a blatant manner when so many suffer the agonies brought on by compulsive gambling?

State sanctioned controls on tobacco, liquor and gambling are required to maintain order. Earlier in this century, we learned prohibition is not a satisfactory solution. From a medical standpoint we see the side effects of these centuries-old ills of society. We know of the suffering by the victims. We are aware of the devastations to their families. Why can't our governments tend to the controls and cease promotion of tobacco and liquor use and the urging of people to gamble? Are vested interests so strong they control the general welfare of our society?

Our profession is fully aware of the health problem brought on by these injurious habits. We should be strong in our admonitions about the hazards to health of these age-old problems. We have seen the cancerous lungs, the cirrhotic livers, the broken bodies and minds. We can help society against such ills. — M.E.A.





## The Proper Study of Man?

**L**AST MONTH I WROTE OF "clinical tales" and recommended some to you. One characteristic of such "tales" (as distinguished from ordinary medical "histories") that I didn't mention was the tendency of tales to deal more fully with context; they place in the center of the story a human being, not merely a symptom, sign, enzyme or pathophysiologic inference. When they deal with "social history," for example, they provide far more enlightenment than "married, with a 60-pack-year history of cigarette smoking" — that contracted, almost mindless comment found in so many medical histories. The medical education establishment should hang its head about that.

One of the authors I mentioned to you was Oliver Sacks who gives full credit to his role model, the Russian neuropsychologist A. R. Luria, for his neurological exegesis of fascinating problems and also for a style of writing and an attitude toward patients. Dr. Luria used the term "romantic science" for his own detailed, fascinating case descriptions. The romance refers partly to rich, full descriptions and interpretations. Such insight contrasts with much contemporary medical writing because it arises from a study and exploration at length of a full human arena.

I'm reminded of the monumentally important article by Watson and Crick in *Nature* for April 25, 1953, which described the chemical structure of the DNA molecule and thus introduced our era of molecular biology. That one-page giant of an article, rushed into print, had one stunning sentence that I've always recalled as one of the

all time understatements: "It has not escaped our notice that the specific pairing we have postulated immediately suggests a possible copying mechanism for the genetic material." Their elaboration of the genetic implications of this crucial structure was published 5 weeks later. One outcome Watson and Crick might not have foreseen, one with baleful effects on the process of patient care, is that the excitement generated by analyzing ever tinier components of living structures has sacrificed much of the looking at entire organisms. For example, only rarely do I encounter a medical student now who knows that a louse on a patient will be identifiable, in part, by having 6 legs (or would they even think to count them). Too many contemporary students' biological preparation for clinical medicine gives insufficient attention to structures larger than an organ, or larger than even a single cell. The "biomedical model" of illness, exceedingly useful, is unsuitable only when it excludes crucial larger structures such as the entire person, the family or the community.

My ruminations on this topic sometimes anger me and sometimes inspire me to battle the unfortunate narrowness that so often characterizes this era. In response, I've developed a 2-part all-purpose question to use to help select students to enter (or graduate from) medical school:

1. Alexander Pope's most frequently quoted line says, "The proper study of mankind is \_\_\_\_." a) God; b) man; c) intracellular messengers; d) ribosomes; e) anything as small as a molecule.
2. What did he mean?

Giving the right answer would not assure admission (or graduation), but the wrong answer or a non-insightful explanation would prompt some careful inquiry.

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Dr. Caplan is Associate Dean for Continuing Medical Education at the University of Iowa College of Medicine.

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## Outlier Review

**T**HE HEALTH CARE FINANCING Administration refers to particularly complex cases qualifying for payment above the normal DRG reimbursement as day and cost outliers. To ensure outliers are appropriate, and that high quality care is delivered under the DRG system, the IFMC is required to review 25% of each hospital's day outliers. A case is considered a day outlier if the length of stay exceeds HCFA's outlier threshold for a certain DRG.

The Federal Register publishes a list of Medicare DRGs, their respective weights and outlier thresholds yearly. In addition, 25% of all cost outliers must be reviewed from those outliers where the billed charges are at least \$3,000 above the cost outlier threshold. Hospitals submit a copy of the itemized bill with the medical record for this review. This case illustrates the day outlier review process.

### *Case Study*

A 73-year-old male is admitted to the hospital for drainage of a chronically distended bladder due to a bladder outlet obstruction. Upon admission, an exam shows an extended bladder up to the level of the umbilicus, no edema and otherwise normal heart, lungs and abdomen. An IVP shows a non-functioning right kidney and a grossly dilated left ureter with hydronephrosis. The patient is azotemic, with a BUN of 55 and creatinine of 4.2.

Initially, the bladder obstruction appears to be caused by hypertrophy of the prostate. However, a cystoscopy fails to identify the left ureteral orifice, preventing catheterization. The attending physician now believes bladder thickening is strangulating the intramural part of the left ureter and hindering urine flow.

During the next week, kidney functioning is observed to determine whether surgery or percutaneous mediculation could relieve the obstruction. The attending physician decides a TURP is necessary. During surgery, dye is instilled intravenously and the ureteral orifice can now be identified. At this time, a ureteral catheter is inserted.

During post-op, the patient recovers well and is switched from IV antibiotics to oral medication. The ureteral and 3-way bladder catheters are left in place for 4 more days to gradually siphon accumulated bladder urine and avoid hemorrhaging. As the urine is siphoned, the BUN and creatinine progressively return to normal levels.

Three days after the catheters have been removed, the patient is discharged on prophylactic antibiotics and diuretics. The physician documents careful plans to follow the patient's progress and observe the undiagnosed non-functioning right kidney and still functioning left kidney.

This case is selected for outlier review and some of the days are denied. Which of the days are denied and why?

### *Reviewer comments*

An acute level of care during the patient's entire treatment is not justified. After urine is siphoned and cystoscopy performed, the patient is merely being observed before the decision to perform a TURP is made. Since the observation could have been done at a skilled level, this week is denied on day outlier review.

Also, the patient is kept in acute care for one week following the TURP. During the final 3 days of this week the patient is stable, taking oral medications and voiding normally. These 3 days of post-op care at the acute level are denied during outlier review as well.

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This column is provided by the Iowa Foundation for Medical Care to discuss review requirements and procedures. This month's author is James Gilson, M.D., IFMC president.



# Halfway Planning

**T**HE INCOME TAX DEADLINE has passed but the need for keeping financial records remains. The following items should be placed on your calendar to assist you in keeping your financial picture in order.

Some tasks have deadlines; others can be done annually. This timetable may make tax time less frustrating next year.

## *June*

- Call the credit reporting agency in your area and obtain a copy of your credit rating to ensure it is accurate.

- If you owe quarterly estimated taxes, your second payment for the year is due by June 15 (federal) and July 2 (Iowa).

- Review your investments and consider tax-exempt alternatives.

- Evaluate and revise your savings plan, including your own and those you have through your employer.

## *July*

- Give your finances a mid-year checkup: Is your debt too high? How has your net worth changed? Have you updated your personal financial statement?

- Review your insurance coverages. Have you identified and covered all your risks?

## *August*

- Tax time is here again (15th), if you've asked for an extension on filing your income tax return for 1989.

- Review any upcoming educational expenses for yourself and your family and related available financing alternatives.

## *September*

- Review your retirement plans and alternatives.

- Your third payment of estimated income taxes for the year is due September 17 (federal) and October 1 (Iowa).

## *October*

- Start shopping early for the holidays and avoid piling up large bills and unnecessary finance charges.

- Clean house and give to charity any non-cash items for which you may claim a tax deduction.

- Update your monthly income and expenses. Organize your files for year-end.

- Review and update your will. Are there any estate issues to be considered?

## *November*

- Review your employee benefits package. Revise as necessary and consider what benefits you may need in the coming years.

- Contact your tax advisor and set up an appointment to review your 1990 tax situation.

## *December*

- Consider pre-paying your property tax bill and the January installment of your estimated income taxes.

- If you are self-employed, December 31 is the deadline for setting up a Keogh plan. Your contribution to this plan is not due until tax filing day in 1991.

- Remember to calculate your year-end auto mileage and your business and personal mileage portions for the year.

- Set aside any year-end tax documentation sent to you from banks, investment houses, employers, etc.

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This article was prepared by Kevin Prust of McGladrey and Pullen, Des Moines.

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# Public Health Legislation

**T**HE 1990 SESSION OF THE 73rd General Assembly addressed a range of public health issues. Legislators debated hundreds of bills covering prevention, access and treatment of health problems.

This analysis offers an overview of legislative action on public health. Several health related bills — including the Omnibus Drug Bill — passed during the final hours of the session and await the Governor's action.

Health-related bills passed by the General Assembly fall within 3 broad categories: increased resources for health services, substance abuse and regulatory action.

## *Increased Resources*

Governor Terry Branstad approved the primary state fund appropriation to Iowa Department of Public Health (IDPH) increasing funds for the Physician Care for Children's Program, obstetrical and dental service through Maternal and Child Health Care Centers, Public Health Nursing, Homemaker Home Health Aides and vaccines. Increased funding is also provided for lead abatement, chlamydia testing and rural health activities. In addition, legislation established an AIDS Service Task Force to collect information on existing services, identify barriers and develop policy recommendations.

## *Substance Abuse*

Legislation stiffened penalties for illegal distribution of anabolic steroids, updated the controlled substances section of the *Code of Iowa*; and a definition of a chronic substance abuser was added.

The Omnibus Drug Bill provides for increased federal and state funds for law enforcement, treatment and prevention. Special emphasis is placed on reducing the waiting lists at publicly funded treatment programs and making funds available to support aftercare services for persons completing treatment.

The "drug bill" also creates a Council on Chemically Exposed Infants and establishes an Addiction Treatment Effectiveness Advisory Council.

## *Regulatory Action*

Funding and staff for IDPH was authorized to perform duties required by 1989 legislation which established regulations for radon mitigation and swimming pool safety standards.

The 1990 legislative session enacted state regulations for blood banks, tanning facilities and licensure of respiratory care practitioners. Legislators acted to include restaurants as a public place where smoking is restricted and penalties for violations were increased.

For more details on specific language contact the Iowa Medical Society legislative staff or Mike Coverdale, legislative liaison, Iowa Department of Public Health at 515/281-4342.

## *Dental Services for the Disabled*

The U. of I. Department of Pediatric Dentistry and the IDPH are cosponsoring a program which provides dental services to low income handicapped people.

To obtain more information or to make patient referrals, call Tricia Campanelli, project coordinator, University Hospital School, Dentistry Dept., University of Iowa, Iowa City, Iowa 52242, 319/356-1517.



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# About Iowa Physicians

**Dr. Margaret Draeger**, Clinton, has left Medical Associates to practice medicine in Marshfield, Wisconsin. **Dr. Stephen Fuller** has joined the family practice of **Drs. Edward Schmiedel, Paul Royer and David Schweizer**, Charles City. Dr. Fuller received the M.D. degree from Creighton University School of Medicine, Omaha, Nebraska and completed a residency at Fox Valley Family Practice Residency, Appleton, Wisconsin. The following physicians have been named to the medical staff of Iowa Lutheran Hospital, Des Moines: **Dr. Larry Heller**, chief of staff; **Dr. Kenneth Anderson**, secretary; **Dr. Michael Kent**, treasurer and **Dr. James Opoien**, member-at-large of the 1990 Medical Executive Committee. Three U. of I. College of Medicine researchers recently were

awarded grants from the National Institutes of Health for AIDS-related research and other medical studies. They are: **Dr. John Cowdery** and **Dr. Robert Merchant**, internal medicine and **Dr. Lubomir Turek**, pathology. **Dr. Robert Joranson** was honored for his contributions to the Council Bluffs community at the annual Mercy Hospital Heritage Dinner. Dr. Joranson practiced in Council Bluffs for 40 years. **Dr. Nidal Harb**, Clinton cardiologist, has been appointed to serve as a member of the International Program Committee of the American Heart Association. **Dr. Duane Warden**, Council Bluffs, has retired after 35 years of medical practice. Dr. Warden received the M.D. degree from the University of Washington School of Medicine, Seattle, Washington.



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**MANKATO CLINIC, LTD —** is seeking BE/BC physician in the following specialties: allergy, dermatology, family practice, invasive cardiology, oncology, urology, ophthalmology, occupational/emergency medicine, pulmonology, general vascular surgery and general internal medicine. The Mankato Clinic is a 40-doctor multi-specialty group practice in south central Minnesota with a trade area population of 150,000. Guaranteed salary first year, incentive thereafter with full range of benefits and liberal time off. For more information, call Roger Greenwald, Administrator or Dr. B.C. McGregor at 507/625-1811 or write 501 Holly Lane, Mankato, Minnesota 56001.

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**GENERAL INTERNIST WITH PSYCHIATRY INTEREST** — Marshfield Clinic multispecialty group practice with over 300 physicians is seeking a medical director for the inpatient psychiatry unit. A BC/BE internist with psychiatry experience is preferred. The medical directorship of the psychiatry unit is half time and the applicant may develop the other portion of practice to meet his or her practice interest. This could include a private practice or noncontinuity of care practice such as walk-in clinic, preop evaluation or employee health clinic. Starting salary is negotiable but very competitive and the fringe benefit package is outstanding. Send CV and references to David L. Draves, 1000 North Oak Avenue, Marshfield, Wisconsin 54449 or call collect at 715/387-5376.

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**PSYCHIATRISTS** — Immediate openings for BE/BC psychiatrist to join staff adult and child in a modern, 98-bed, psychiatric addition to a general hospital complex. This opportunity offers a stimulating mix of clinical and teaching activities. Faculty appointment with University of Iowa is possible. Quality of life is high in this clean, medium-sized city. \$92,000-112,000 plus a generous benefit package. For further information write James Pullen, M.D., Department of Psychiatry, Broadlawn Medical Center, Des Moines, Iowa or call 515/282-2462. EOE.

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**INTERNIST** — Third internist to join very busy progressive 20-man multispecialty group in historic midwest community. Fully equipped 120-bed hospital with plans for new facility, excellent school system, many recreational and civic activities. Competitive starting salary and benefits package with productivity bonus and partnership potential. Call Cheryl Broderick, E.G. Todd Associates, 800/762-9213 or collect 508/688-9063.

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*(Continued next page)*



**FAMILY PHYSICIAN** — Fifth FP sought to join progressive 20-man multispecialty group in historic midwest community. Fully equipped 120-bed hospital with plans for new facility, excellent school system, many recreational and civic activities. Competitive starting salary and benefits package with productivity bonus and partnership potential. Call Cheryl Broderick, E.G. Todd Associates, 800/762-9213 or collect 508/688-9063.

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**OB/GYN** — Multispecialty group with 10 clinics in Minneapolis/St. Paul seeks several BC/BE obstetricians/gynecologists. Serve prepaid and private patients. First year compensation of \$110,000. Excellent benefits and clinic facilities. Please contact Nancy Borgstrom, Aspen Medical Group, 1020 Bandana Boulevard West, St. Paul, Minnesota 55108, 612/641-7185.

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**NEONATOLOGIST** — Rockford Memorial Hospital, a 480-bed tertiary care hospital in Rockford, Illinois, serves an 11-county area and is seeking a neonatologist to join its staff. The hospital's level III NICU has over 500 admissions a year. Call coverage will be shared with 6 other neonatologists. Two perinatologists, 2 pediatric intensivists and over 30 pediatricians are currently part of its active staff. An excellent first year guarantee and benefits package are being offered. Please call Sandra Otto at 1-800/332-0488 (1-800/236-0488 in Wisconsin) for additional information.

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**EMERGENCY MEDICINE** — Compensation package over \$110,000 per year. Career opportunities in emergency medicine with company providing emergency physician services to 14 hospitals in Iowa. Physicians work as independent contractors, with a guaranteed hourly compensation, excellent benefit package and paid malpractice insurance. Physicians must be certified in ACLS and have pertinent experience in emergency medicine. Part-time positions also available. Please submit application to Lowell Sisson, Emergency Practice Associates, P.O. Box 1260, Waterloo, Iowa 50704 or call 1-800/458-5003.

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**FAMILY PRACTICE, INTERNAL MEDICINE AND GENERAL SURGERY PRACTICE OPPORTUNITIES** — Rural Lake Country Community is seeking the above practitioners to join a busy 12-physician multispecialty group. Quality, comfortable living environment, multiple recreational activities, fine educational opportunities and cultural activities abound. Salary and fringe benefits very liberal. Send curriculum vitae or inquiries to Lake Region Clinic, P.C., Attn: Joel Rotvold, P.O. Box 1100, Devils Lake, North Dakota 58301 or call collect at 701/662-2157 for further information.

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**MARENGO, IOWA** — Family practice physicians wanted for a new practice. Attractive guarantee and benefits. Rural location with easy access to the Amana, Iowa City and Cedar Rapids. For more information please contact William A. Watts, Mercy Services Iowa City, Inc. at 319/339-3541.

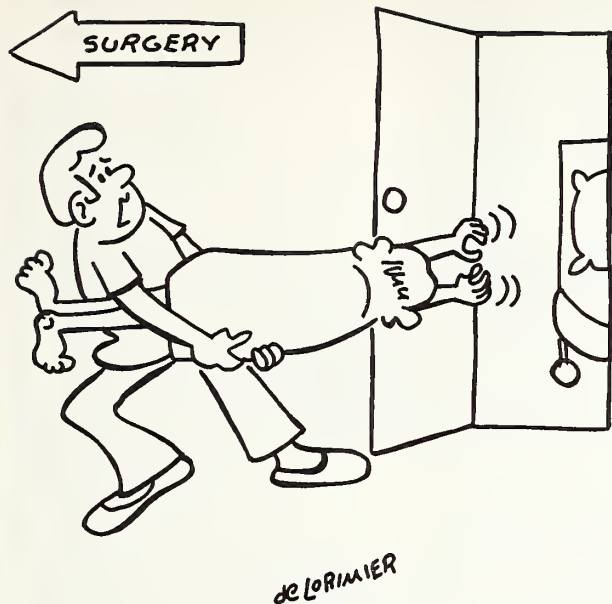
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**TIRED OF THE RAT RACE?** — Anxious about entering private practice with the attendant risks and demands of the 90s? Why not consider emergency medicine? If you are trained in family practice or emergency medicine and are looking for a career with fixed hours, guaranteed income free of financial risks and other practice hassles, please give me a call. Kenneth P. Schultheis, D.O., President, Emergency Physicians Services, P.C., c/o Mercy Hospital Medical Center, Des Moines, 515/247-4445.

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## Quietly Helping People

**F**OR CLOSE TO 40 YEARS, a very special component of organized medicine in Iowa has been quietly supporting a significant number of educational and scientific activities for physicians and the public and offering invaluable financial assistance to Iowa medical students.

The **Iowa Medical Foundation**, created in the 1950s and funded by the physicians of the Iowa Medical Society, exists to engage in and support educational and scientific activities and projects.

### *Help For Medical Students*

Medical education is expensive and the major activity of the Iowa Medical Foundation continues to be the Dr. George Scanlon Medical Student Loan Fund, which provides financial aid to Iowans training to be physicians. With federal funding cutbacks and the high cost of education, this activity has become increasingly significant.

Since the program's inception, loans have been made to 662 Iowa medical students. The loans total \$1.8 million. Over \$1 million of this has been loaned in the past 15 years.

In the 1989-90 academic year, loans totaling over \$165,000 were made to 41 Iowa students. These students came from 25 different Iowa communities. For the 1990-91 academic year, the Foundation Board of Directors has allocated \$175,000 for student loans; \$150,000 of this will go to students attending the University of Iowa College of Medicine.

Foundation loans are available up to \$5,000 per year for junior and senior medical students with Iowa ties.

### *Other Worthy Projects*

The Foundation is also privileged to have the Dr. Henry Albert Physician Benevolence

and Public Health Fund. Dr. Albert practiced medicine in Iowa and stipulated in his will that proceeds from his estate be used for activities and projects benefiting health and medicine.

The Foundation has received about \$280,000 from this source since the mid 1960s.

The Foundation's Albert Fund is available to help needy physicians and/or their widows. It also supports the Assistance Program for Troubled Physicians for physicians hampered by addiction or other problems. For many years, the Foundation has been a key supporter of the Hawkeye Science Fair for junior and senior high students across Iowa. The Foundation contributes to the Iowa Games for Iowans of all ages and, this past year, supported 3 regional sports medicine conferences for coaches, trainers, parents and athletes. The topic was steroid use.

The Foundation also provides awards for an annual essay contest sponsored by the Iowa Commission of Persons with Disabilities.

### *Crucial Physician Support*

The main source of funding for all these beneficial activities is Iowa's practicing physicians. Over the past 15 years, the Foundation has received average contributions of over \$420,000, the major part of which came from physicians.

In 1989, 724 physicians contributed \$25,410 to the Foundation through the voluntary contribution option on the IMS dues statement.

Obviously, Iowa's physicians are supporting an organization which does lots of good for lots of people.

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June 1990

Iowa Medicine





# VASOTEC<sup>®</sup>

## (ENALAPRIL MALEATE MSD)

VASOTEC is available in 2.5-mg, 5-mg, 10-mg, and 20-mg tablet strengths.

**Contraindications:** VASOTEC<sup>®</sup> (Enalapril Maleate, MSD) is contraindicated in patients who are hypersensitive to this product and in patients with a history of angioedema related to previous treatment with an ACE inhibitor.

**Warnings:** **Angioedema:** Angioedema of the face, extremities, lips, tongue, glottis, and/or larynx has been reported in patients treated with ACE inhibitors, including VASOTEC. In such cases, VASOTEC should be promptly discontinued and the patient carefully observed until the swelling disappears. In instances where swelling has been confined to the face and lips, the condition has generally resolved without treatment, although antihistamines have been useful in relieving symptoms. Angioedema associated with laryngeal edema may be fatal. **Where there is involvement of the tongue, glottis, or larynx likely to cause airway obstruction, appropriate therapy, e.g., subcutaneous epinephrine solution 1:1000 (0.3 mL to 0.5 mL), should be promptly administered.** (See ADVERSE REACTIONS.)

**Hypotension:** Excessive hypotension is rare in uncomplicated hypertensive patients treated with VASOTEC alone. Patients with heart failure given VASOTEC commonly have some reduction in blood pressure, especially with the first dose, but discontinuation of therapy for continuing symptomatic hypotension usually is not necessary when dosing instructions are followed; caution should be observed when initiating therapy. (See DOSAGE AND ADMINISTRATION.) Patients at risk for excessive hypotension, sometimes associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death, include those with the following conditions or characteristics: heart failure, hypotension, high-dose diuretic therapy, recent intensive diuresis or increase in diuretic dose, renal dialysis, or severe volume and/or salt depletion of any etiology. It may be advisable to eliminate the diuretic (except in patients with heart failure), reduce the diuretic dose, or increase salt intake cautiously before initiating therapy with VASOTEC in patients at risk for excessive hypotension who are able to tolerate such adjustments. (See PRECAUTIONS, Drug Interactions and ADVERSE REACTIONS.) In patients at risk for excessive hypotension, therapy should be started under very close medical supervision and such patients should be followed closely for the first two weeks of treatment and whenever the dose of enalapril and/or diuretic is increased. Similar considerations may apply to patients with ischemic heart disease or cardiovascular disease in whom an excessive fall in blood pressure could result in a myocardial infarction or cerebrovascular accident. If excessive hypotension occurs, the patient should be placed in the supine position and, if necessary, receive an intravenous infusion of normal saline. A transient hypotensive response is not a contraindication to further doses of VASOTEC, which usually can be given without difficulty once the blood pressure has stabilized. If symptomatic hypotension develops, a dose reduction or discontinuation of VASOTEC or concomitant diuretic may be necessary.

**Neutropenia/Agranulocytosis:** Another ACE inhibitor, captopril, has been shown to cause agranulocytosis and bone marrow depression, rarely in uncomplicated patients but more frequently in patients with renal impairment, especially if they also have a collagen vascular disease. Available data from clinical trials of enalapril are insufficient to show that enalapril does not cause agranulocytosis at similar rates. Foreign marketing experience has revealed several cases of neutropenia or agranulocytosis in which a causal relationship to enalapril cannot be excluded. Periodic monitoring of white blood cell counts in patients with collagen vascular disease and renal disease should be considered.

**Precautions:** **General:** **Impaired Renal Function:** As a consequence of inhibiting the renin-angiotensin-aldosterone system, changes in renal function may be anticipated in susceptible individuals. In patients with severe heart failure whose renal function may depend on the activity of the renin-angiotensin-aldosterone system, treatment with ACE inhibitors, including VASOTEC, may be associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death.

In clinical studies in hypertensive patients with unilateral or bilateral renal artery stenosis, increases in blood urea nitrogen and serum creatinine were observed in 20% of patients. These increases were almost always reversible upon discontinuation of enalapril and/or diuretic therapy. In such patients, renal function should be monitored during the first few weeks of therapy.

Some patients with hypertension or heart failure with no apparent preexisting renal vascular disease have developed increases in blood urea and serum creatinine, usually minor and transient, especially when VASOTEC has been given concomitantly with a diuretic. This is more likely to occur in patients with preexisting renal impairment. Dosage reduction and/or discontinuation of the diuretic and/or VASOTEC may be required.

**Evaluation of patients with hypertension or heart failure should always include assessment of renal function.** (See DOSAGE AND ADMINISTRATION.)

**Hyperkalemia:** Elevated serum potassium (>5.7 mEq/L) was observed in approximately 1% of hypertensive patients in clinical trials. In most cases these were isolated values which resolved despite continued therapy. Hyperkalemia was a cause of discontinuation of therapy in 0.28% of hypertensive patients. In clinical trials in heart failure, hyperkalemia was observed in 3.8% of patients, but was not a cause for discontinuation.

Risk factors for the development of hyperkalemia include renal insufficiency, diabetes mellitus, and the concomitant use of potassium-sparing diuretics, potassium supplements, and/or potassium-containing salt substitutes, which should be used cautiously, if at all, with VASOTEC. (See Drug Interactions.)

**Surgery/Anesthesia:** In patients undergoing major surgery or during anesthesia with agents that produce hypotension, enalapril may block angiotensin II formation secondary to compensatory renin release. If hypotension occurs and is considered to be due to this mechanism, it can be corrected by volume expansion.

### Information for Patients:

**Angioedema:** Angioedema, including laryngeal edema, may occur especially following the first dose of enalapril. Patients should be so advised and told to report immediately any signs or symptoms suggesting angioedema (swelling of face, extremities, eyes, lips, tongue, difficulty in swallowing or breathing) and to take no more drug until they have consulted with the prescribing physician.

**Hypotension:** Patients should be cautioned to report lightheadedness, especially during the first few days of therapy. If actual syncope occurs, the patients should be told to discontinue the drug until they have consulted with the prescribing physician.

All patients should be cautioned that excessive perspiration and dehydration may lead to an excessive fall in blood pressure because of reduction in fluid volume. Other causes of volume depletion such as vomiting or diarrhea may also lead to a fall in blood pressure; patients should be advised to consult with the physician.

**Hyperkalemia:** Patients should be told not to use salt substitutes containing potassium without consulting their physician.

**Neutropenia:** Patients should be told to report promptly any indication of infection (e.g., sore throat, fever) which may be a sign of neutropenia.

**NOTE:** As with many other drugs, certain advice to patients being treated with enalapril is warranted. This information is intended to aid in the safe and effective use of this medication. It is not a disclosure of all possible adverse or intended effects.

### Drug Interactions:

**Hypotension:** **Patients on Diuretic Therapy:** Patients on diuretics and especially those in whom diuretic therapy was recently instituted may occasionally experience an excessive reduction of blood pressure after initiation of therapy with enalapril. The possibility of hypotensive effects with enalapril can be minimized by either discontinuing the diuretic or increasing the salt intake prior to initiation of treatment with enalapril. If it is necessary to continue the diuretic, provide close medical supervision after the initial dose for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and DOSAGE AND ADMINISTRATION.)

**Agents Causing Renin Release:** The antihypertensive effect of VASOTEC is augmented by antihypertensive agents that cause renin release (e.g., diuretics).

**Other Cardiovascular Agents:** VASOTEC has been used concomitantly with beta-adrenergic-blocking agents, methyldopa, nitrates, calcium-blocking agents, hydralazine, prazosin, and digoxin without evidence of clinically significant adverse interactions.

**Agents Increasing Serum Potassium:** VASOTEC attenuates potassium loss caused by thiazide-type diuretics. Potassium-sparing diuretics (e.g., spironolactone, triamterene, or amiloride), potassium supplements, or potassium-containing salt substitutes may lead to significant increases in serum potassium. Therefore, if concomitant use of these agents is indicated because of demonstrated hypokalemia, they should be used with caution and with frequent monitoring of serum potassium. Potassium-sparing agents should generally not be used in patients with heart failure receiving VASOTEC.

**Lithium:** Lithium toxicity has been reported in patients receiving lithium concomitantly with drugs which cause elimination of sodium, including ACE inhibitors. A few cases of lithium toxicity have been reported in patients receiving concomitant VASOTEC and lithium and were reversible upon discontinuation of both drugs. It is recommended that serum lithium levels be monitored frequently if enalapril is administered concomitantly with lithium.

**Pregnancy—Category C:** There was no teratogenicity or fetotoxicity in rats treated with up to 200 mg/kg/day of enalapril (333 times the maximum human dose). Fetotoxicity, expressed as a decrease in average fetal weight, occurred in rats given 1200 mg/kg/day of enalapril but did not occur when these animals were supplemented with saline. Enalapril was not teratogenic in rabbits. However, maternal and fetal toxicity occurred in some rabbits at doses of 1 mg/kg/day or more. Saline supplementation prevented the maternal and fetal toxicity seen at doses of 3 and 10 mg/kg/day, but not at 30 mg/kg/day (50 times the maximum human dose).

Radioactivity was found to cross the placenta following administration of labeled enalapril to pregnant hamsters. There are no adequate and well-controlled studies of enalapril in pregnant women. However, data are available that show enalapril crosses the human placenta. Because the risk of fetal toxicity with the use of ACE inhibitors has not

been clearly defined, VASOTEC<sup>®</sup> (Enalapril Maleate, MSD) should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Postmarketing experience with all ACE inhibitors thus far suggests the following with regard to pregnancy outcome. Inadvertent exposure limited to the first trimester of pregnancy has not been reported to affect fetal outcome adversely. Fetal exposure during the second and third trimesters of pregnancy has been associated with fetal and neonatal morbidity and mortality.

When ACE inhibitors are used during the later stages of pregnancy, there have been reports of hypotension and decreased renal perfusion in the newborn. Digoxylaminol in the mother has also been reported, presumably representing decreased renal function in the fetus. Infants exposed *in utero* to ACE inhibitors should be closely observed for hypotension, oliguria, and hyperkalemia. If oliguria occurs, attention should be directed toward support of blood pressure and renal perfusion with the administration of fluids and pressors as appropriate. Problems associated with prematurity such as patent ductus arteriosus have occurred in association with maternal use of ACE inhibitors, but it is not clear whether they are related to ACE inhibition, maternal hypertension, or the underlying prematurity.

**Nursing Mothers:** Milk in lactating rats contains radioactivity following administration of <sup>14</sup>C enalapril maleate. It is not known whether this drug is secreted in human milk. Because many drugs are secreted in human milk, caution should be exercised when VASOTEC is given to a nursing mother.

**Pediatric Use:** Safety and effectiveness in children have not been established.

**Adverse Reactions:** VASOTEC has been evaluated for safety in more than 10,000 patients, including over 1000 patients treated for one year or more. VASOTEC has been found to be generally well tolerated in controlled clinical trials involving 2987 patients.

**HYPERTENSION:** The most frequent clinical adverse experiences in controlled trials were: headache (5.2%), dizziness (4.3%), and fatigue (3%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in controlled clinical trials were: diarrhea (1.4%), nausea (1.4%), rash (1.4%), cough (1.3%), orthostatic effects (1.2%), and asthenia (1.1%).

**HEART FAILURE:** The most frequent clinical adverse experiences in both controlled and uncontrolled trials were: dizziness (7.9%), hypotension (6.7%), orthostatic effects (2.2%), syncope (2.2%), cough (2.2%), chest pain (2.1%), and diarrhea (2.1%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in both controlled and uncontrolled clinical trials were: fatigue (1.8%), headache (1.8%), abdominal pain (1.6%), asthenia (1.6%), orthostatic hypotension (1.6%), vertigo (1.6%), angina pectoris (1.5%), nausea (1.3%), vomiting (1.3%), bronchitis (1.3%), dyspnea (1.3%), urinary tract infection (1.3%), rash (1.3%), and myocardial infarction (1.2%).

Other serious clinical adverse experiences occurring since the drug was marketed or adverse experiences occurring in 0.5% to 1% of patients with hypertension or heart failure in clinical trials in order of decreasing severity within each category:

**Cardiovascular:** Cardiac arrest, myocardial infarction or cerebrovascular accident, possibly secondary to excessive hypotension in high-risk patients (see WARNINGS, Hypotension); pulmonary embolism and infarction, pulmonary edema, rhythm disturbances, atrial fibrillation, palpitation.

**Digestive:** Ileus, pancreatitis, hepatitis (hepatocellular or cholestatic jaundice), melena, anorexia, dyspepsia, constipation, glossitis, stomatitis, dry mouth.

**Musculoskeletal:** Muscle cramps.

**Nervous/Psychiatric:** Depression, confusion, ataxia, somnolence, insomnia, nervousness, paresthesia.

**Urogenital:** Renal failure, oliguria, renal dysfunction (see PRECAUTIONS and DOSAGE AND ADMINISTRATION).

**Respiratory:** Bronchospasm, rhinorrhea, sore throat and hoarseness, asthma, upper respiratory infection.

**Skin:** Exfoliative dermatitis, toxic epidermal necrolysis, Stevens-Johnson syndrome, herpes zoster, erythema multiforme, urticaria, pruritus, alopecia, flushing, hyperhidrosis.

**Special Senses:** Blurred vision, taste alteration, anosmia, linitis, conjunctivitis, dry eyes, tearing.

A symptom complex has been reported which may include a positive ANA, an elevated erythrocyte sedimentation rate, arthralgia/arthritis, myalgias, fever, serositis, vasculitis, leukocytosis, eosinophilia, photosensitivity, rash, and other dermatologic manifestations.

**Angioedema:** Angioedema has been reported in patients receiving VASOTEC (0.2%). Angioedema associated with laryngeal edema may be fatal. If angioedema of the face, extremities, lips, tongue, glottis, and/or larynx occurs, treatment with VASOTEC should be discontinued and appropriate therapy instituted immediately. (See WARNINGS.)

**Hypotension:** In the hypertensive patients, hypotension occurred in 0.9% and syncope occurred in 0.5% of patients following the initial dose or during extended therapy. Hypotension or syncope was a cause for discontinuation of therapy in 0.1% of hypertensive patients. In heart failure patients, hypotension occurred in 6.7% and syncope occurred in 2.2% of patients. Hypotension or syncope was a cause for discontinuation of therapy in 1.9% of patients with heart failure. (See WARNINGS.)

### Clinical Laboratory Test Findings:

**Serum Electrolytes:** Hyperkalemia (see PRECAUTIONS), hyponatremia.

**Creatinine, Blood Urea Nitrogen:** In controlled clinical trials, minor increases in blood urea nitrogen and serum creatinine, reversible upon discontinuation of therapy, were observed in about 0.2% of patients with essential hypertension treated with VASOTEC alone. Increases are more likely to occur in patients receiving concomitant diuretics or in patients with renal artery stenosis. (See PRECAUTIONS.) In patients with heart failure who were also receiving diuretics with or without digitalis, increases in blood urea nitrogen or serum creatinine, usually reversible upon discontinuation of VASOTEC and/or other concomitant diuretic therapy, were observed in about 1% of patients. Increases in blood urea nitrogen or creatinine were a cause for discontinuation in 1.2% of patients.

**Hemoglobin and Hematocrit:** Small decreases in hemoglobin and hematocrit (mean decreases of approximately 0.3 g% and 1.0 vol %, respectively) occur frequently in either hypertension or heart failure patients treated with VASOTEC but are rarely of clinical importance unless another cause of anemia coexists. In clinical trials, less than 0.1% of patients discontinued therapy due to anemia.

**Other (Causal Relationship Unknown):** In marketing experience, rare cases of neutropenia, thrombocytopenia, and bone marrow depression have been reported. A few cases of hemolysis have been reported in patients with G6PD deficiency.

**Liver Function Tests:** Elevations of liver enzymes and/or serum bilirubin have occurred.

**Dosage and Administration:** **Hypertension:** In patients who are currently being treated with a diuretic, symptomatic hypotension occasionally may occur following the initial dose of VASOTEC. The diuretic should, if possible, be discontinued for two to three days before beginning therapy with VASOTEC to reduce the likelihood of hypotension. (See WARNINGS.) If the patient's blood pressure is not controlled with VASOTEC alone, diuretic therapy may be resumed. If the diuretic cannot be discontinued, an initial dose of 2.5 mg should be used under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, Drug Interactions.)

The recommended initial dose in patients not on diuretics is 5 mg once a day. Dosage should be adjusted according to blood pressure response. The usual dosage range is 10 to 40 mg per day administered in a single dose or in two divided doses. In some patients treated once daily, the antihypertensive effect may diminish toward the end of the dosing interval. In such patients, an increase in dosage or twice-daily administration should be considered. If blood pressure is not controlled with VASOTEC alone, a diuretic may be added.

Concomitant administration of VASOTEC with potassium supplements, potassium salt substitutes, or potassium-sparing diuretics may lead to increases of serum potassium (see PRECAUTIONS).

**Dosage Adjustment in Hypertensive Patients with Renal Impairment:** The usual dose of enalapril is recommended for patients with a creatinine clearance > 30 mL/min (serum creatinine of up to approximately 3 mg/dL). For patients with creatinine clearance ≤ 30 mL/min (serum creatinine ≥ 3 mg/dL), the first dose is 2.5 mg once daily. The dosage may be titrated upward until blood pressure is controlled or to a maximum of 40 mg daily.

**Heart Failure:** VASOTEC is indicated as adjunctive therapy with diuretics and digitalis. The recommended starting dose is 2.5 mg once or twice daily. After the initial dose of VASOTEC, the patient should be observed under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, Drug Interactions.) If possible, the dose of the diuretic should be reduced, which may diminish the likelihood of hypotension. The appearance of hypotension after the initial dose of VASOTEC does not preclude subsequent careful dose titration with the drug, following effective management of the hypotension. The usual therapeutic dosing range for the treatment of heart failure is 5 to 20 mg daily given in two divided doses. The maximum daily dose is 40 mg. Once-daily dosing has been effective in a controlled study, but nearly all patients in this study were given 40 mg; the maximum recommended daily dose, and there has been much more experience with twice-daily dosing. In addition, in a placebo-controlled study which demonstrated reduced mortality in patients with severe heart failure (NYHA Class IV), patients were treated with 2.5 to 40 mg per day of VASOTEC, almost always administered in two divided doses. (See CLINICAL PHARMACOLOGY, Pharmacodynamics and Clinical Effects.) Dosage may be adjusted depending upon clinical or hemodynamic response. (See WARNINGS.)

**Dosage Adjustment in Patients with Heart Failure and Renal Impairment or Hyponatremia:** In patients with heart failure who have hyponatremia (serum sodium < 130 mEq/L) or with serum creatinine > 1.6 mg/dL, therapy should be initiated at 2.5 mg daily under close medical supervision. (See DOSAGE AND ADMINISTRATION, Heart Failure, WARNINGS, and PRECAUTIONS, Drug Interactions.) The dose may be increased to 2.5 mg b.i.d. to 5 mg b.i.d. and higher as needed, usually at intervals of four days or more, if at the time of dosage adjustment there is not excessive hypotension or significant deterioration of renal function. The maximum daily dose is 40 mg.

For more detailed information, consult your MSD Representative or see Prescribing Information, Merck Sharp & Dohme, Division of Merck & Co., Inc., West Point, PA 19386.

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# In This Issue

## Departments

- 331 President's Privilege
- 347 Questions and Answers
- 355 The Editor Comments
- 357 Biomedical Ethics
- 358 Practice Management
- 360 Iowa Department of Public Health
- 363 About Iowa Physicians
- 370 In the Public Interest

## Special Articles

- 332 **A 'Wonderful and Rewarding' Year**  
*'Take pride in your profession' advises the IMS immediate past president.*  
**Donald Rodawig, M.D.**
- 335 **Greetings from the AMA**  
*Challenging times often give rise to miraculous progress.*  
**John Tupper, M.D.**
- 337 **Have Slides, Will Travel**  
*Giving up your leisure time can be very rewarding, says this physician.*
- 339 **New Building, Old Values**  
*Incoming IMS president advises colleagues to be 'good people' first.*  
**Robert Whinery, M.D.**
- 340 **House Addresses Key Health Issues**  
*IMS delegates formulate policy on important health care issues for physicians and their patients.*

## Scientific Articles

- 349 **The Cholesterol Controversy**  
*Is too much importance being placed on cholesterol counts? These physicians have differing opinions.*  
**Helmut Schrott, M.D., Pasquale Palumbo, M.D.**
- 352 **Postpartum Pneumoperitoneum**  
*Authors discuss a unique case report.*  
**John Ely, M.D., Linda Iler, M.D.**

## About the Cover

Greenwood Park near the Des Moines Art Center is the setting for this month's sylvan cover photo taken by retired Des Moines pathologist Maynard Meserve, Jr., M.D. Dr. Meserve has been an amateur photographer for over 30 years and says the outdoors is his favorite subject.



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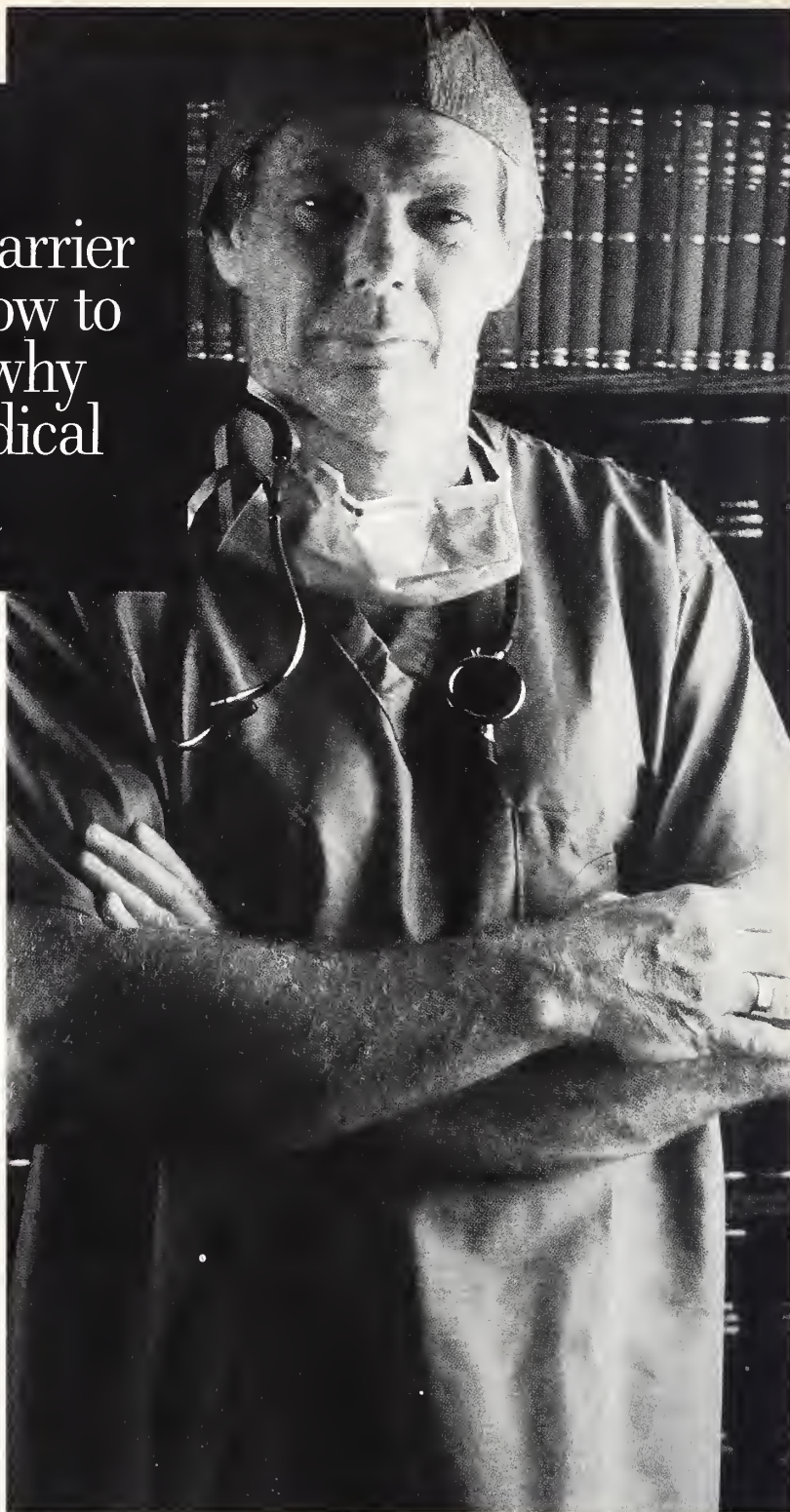
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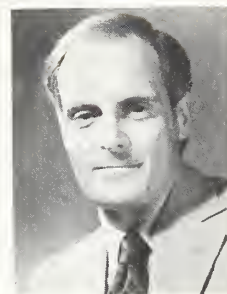
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## Robert Whinery, M.D.

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President's Privilege



# Don't Let George Do It

**T**HE ANNUAL HOUSE OF DELEGATES is the meeting which provides guidance to your staff and officers for the coming year. At this meeting, we outline problems and recommend solutions; but if we don't know your concerns we can't find the answers.

Last year a committee evaluated the IMS election process and the annual meeting. It was alarming to realize many counties have no delegates at this important meeting — often the larger counties have under half their possible representatives. Are Iowa physicians too busy or apathetic? Have they given up? Are the issues undebatable? Is it because our elections often involve uncontested races?

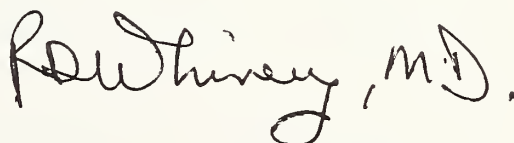
When delegate representation is poor, are IMS officers and staff getting the correct message about the work agenda? Please let us hear from you! The best method is through your district councilor, but any route will do.

If you're as frustrated as I am with many aspects of medical practice, our

phones should be ringing off the hook. We don't have all the answers, but I think you'll find some of the problems are cast into a different light when you're involved and informed.

Every one of you must get involved politically, and I've asked your very involved Auxiliary spouses to push you. If you talk to us, we'll know which direction you want us to take. If you're involved yourself, we should have a full House of Delegates and a full slate of contested elections.

Please don't "let George do it" and then be critical. Help us get your message loud and clear.



Robert Whinery, M.D.  
President



# A 'Wonderful and Rewarding' Year

DONALD RODAWIG, M.D.

Spirit Lake, Iowa

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*Dr. Rodawig discusses his year as IMS president and reflects on some crucial issues facing medicine.*

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**I**T'S TRUE. TIME DOES FLY when you're having fun.

Indeed, even though the past 12 months have been at times frustrating, more often challenging and always busy, my 'other life' as president of the Iowa Medical Society has been mostly fun and always gratifying.

And, I hope, productive, too.

Today, I have left to others to report to you on the many activities and projects of the IMS. I want to share a few thoughts on a variety of subjects about which I have some strong feelings.

**Advances in medicine:** I am amazed at the astounding things we can now do in treating and helping our patients . . . thanks to the mind-boggling technological advances that have been made in recent years. It is more complicated to care for patients now, but it is exciting to be able to use new technologies and advancements to improve patient care.

Last month, the Board of Trustees had the pleasure of meeting in Iowa City with Hunter Rawlings, President of the Univer-

sity of Iowa, and Dr. John Eckstein, Dean of the College of Medicine. Iowa has one of the larger medical schools in the country, with an enrollment of 700 medical students; a 180 million dollar budget and 73 million dollars in medical research grants.

Surely, we can be proud of our medical school and, in particular, its faculty and staff, who are at the forefront in developing new technology and advances in medicine.

But, these advances have had some negative side effects. For instance:

Patients expect near perfect results, further complicating the doctor-patient relationship, and creating tort implications.

People live longer and request more care from our already clogged health care system. As a result, health care costs have risen to the point where increased attention is being given to some form of national health care, which will result in rationing.

Society must reach a consensus of how we use advances in technology before we determine how far to go with the miracles of medicine. Certainly, uncontrolled technology, without moral direction, could be the downfall of our democratic society as we know it.

**Government medicine:** Increasingly, federal officials are blaming physicians and hospitals for health care problems. At the same time, it appears neither the administration nor Congress has plans to develop a coherent health policy. Their decisions in this regard are budget driven and are being made by the Office of Management and Budget rather than the Department of Health and Human Services.

What can we, as physicians do? Among other things, we can speak out for proposals of the AMA to revamp Medicare so each generation pays for its own care; so Medicare and Medicaid coverage is uniform in all states; and so employers are required to provide coverage to their employees. Indeed, we must address and respond to the needs of the over 30 million uninsured and underinsured.

We can also talk to our patients about the implications of health care rationing and warn them of the dangers of developing health care policy on the basis of short term budget concerns. Our patients are our best allies. They still admire and depend on their physicians — and don't let anyone try to convince you otherwise.

**Peer review:** No doubt about it . . . peer review is here to stay. Though many physicians view it as an arbitrary intrusion into the doctor-patient relationship, the federal government is committed to peer review as a way of ensuring cost-effective health care delivery.

It's no secret that many Iowa physicians have had some sort of confrontation with the Iowa Foundation For Medical Care — Iowa's professional review organization. Much as I empathize with physicians who feel they can deliver quality, cost-efficient health care without a PRO reviewing their treatment decisions, I believe our efforts should be directed toward working with the IFMC to make sure the peer review process is as fair as possible to both physicians and patients.

I urge all physicians to take advantage of every opportunity to offer suggestions and provide feedback on the peer review process. The IFMC Provider Advisory Committee includes representation from the IMS . . . Drs. Dennis Walter, Don Soll and William Franey. If you have problems that cannot be resolved by talking to an IFMC reviewer, don't complain in private . . . call one of our representatives, who will see to it that your concerns are addressed.

**The ethics of less care:** In February, approximately 300 physicians and lawyers attended 3 regional meetings at which discussion centered on legal and ethical issues relating to the withholding and withdrawing of medical care. There were no "pat" an-



**PRESIDENTIAL HONOR . . .** Dr. Rodawig receives the past president's pin from incoming president, Dr. Whinery.

swers and I believe ethical issues will be our foremost challenge as we enter the 1990s.

Ethical strategy involving such issues as the right to die, abortion, AIDS and quality of life must enter into a general consensus involving our entire society. The impact of tobacco, alcohol, drugs and poor diet has staggering effects on our nation's health.

**July 19, 1989:** Do you remember this date? Physicians and other medical personnel in Sioux City surely do. It was the day a DC-10 crash-landed, leaving a trail of wreckage and injured people.

The response of the physicians, nurses and other members of the medical community was outstanding. They put Iowa on the map. Even Diane Sawyer found out where we are!

Any of us who have complained about having to go through disaster drills can find a lesson in the words of a Sioux City physician who said, "We've been doing disaster drills to the point of absolute boredom for years; we'll take them a little more seriously now."

*(Continued next page)*



**Medicine as a career:** I am sad when I hear a colleague say, "I would never advise my children to go into medicine." Indeed, in spite of the drastic changes that have occurred in the practice environment, I am incredibly fortunate to have practiced medicine in rural Iowa for over 33 years.

Where else could anyone find a more challenging, more satisfying, more fascinating profession than medicine? Who else experiences the satisfaction and joy that comes to a physician when helping a patient get well? I'm into helping my patients stay well by promoting wellness programs.

Physicians should be proud to encourage their children to practice medicine; these same children should be proud to have physicians as their fathers and mothers. Medicine is and always has been an honorable profession which commands respect. Individually, it's our responsibility to earn it.

**Unity:** "The medical profession is much like a symphony orchestra." So said Dr. James Davis in an address to the AMA House of Delegates when he was President of that organization. He added this:

**We have our prima donnas, our egos, our different training by specialty . . . though I will leave it to you which of our specialties most resembles the strings, the winds, the percussions and the brass. But, I am sure you will agree that just as symphonic success depends on cooperating musicians, so the ultimate success of American medicine depends on all physicians in America realizing that we must work together and we must trust each other.**

Charles Schultz, in one of his "Peanuts" cartoons, puts it another way. Linus is watching television, when his older sister, Lucy, enters the room.

"Switch channels," she screams. "I want to watch my program!"

"Are you kidding?" asks Linus. "What makes you think you can just walk in here and take over?"

Lucy replies, "These 5 fingers . . . individually, they're nothing, but when I curl them together like this . . . into a single unit . . . they form a weapon that is terrible to behold!"

Linus asks: "Which channel do you want?"

In the last frame, Lucy watches the TV while Linus looks at his 5 fingers and says, "Why can't you guys get organized like that?"

Organize and unify . . . that's what American medicine must continue to do.

During my year as president and previous years as a trustee, I especially enjoyed the opportunity to work closely with the men and women at our Headquarters Office in West Des Moines. We have excellent staff members who function under the leadership of Eldon Huston, our executive vice president. I could not have carried out my responsibilities as president without their advice and help. I thank them . . . and am forever in their debt.

In addition, I shall be eternally grateful to my colleagues on the Board of Trustees. These dedicated physicians spend untold time and effort working for you, at great personal sacrifice and expense.

The Board members manage the fiscal affairs of your society and oversee the numerous activities and programs. I feel strongly they should be compensated for their efforts.

Most corporations and medical societies pay their directors, and I believe the IMS should take similar action. Hence, I suggest that an Ad Hoc Committee be appointed — consisting of IMS past presidents — to consider this proposal. Its conclusions and recommendations would be submitted to the Board of Trustees for review of any financial implications, prior to final consideration by the House of Delegates.

Serving as president of the IMS is a unique privilege. I also had the unique privilege of practicing medicine with my father for 15 years. If he and my mother were alive and here today, I believe they would be as honored and proud as I am. I would be amiss if I did not recognize my family and partners. Without their support and understanding I would not have been able to function as your trustee and president the last few years.

It has been a wonderful and rewarding year and I thank you for it. I wish the best to Bob Whinery, who will succeed me on Sunday.

# Greetings from the AMA

JOHN TUPPER, M.D.  
Davis, California

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***In an address to the 1990 IMS House of Delegates, the AMA president-elect discussed the organization's search for a new executive vice president and the "Health Access America" campaign.***

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AS PRESIDENT-ELECT OF THE American Medical Association, I am pleased and proud to be with you today. Each of you cares enough about medicine to put in the hard work and long hours your leadership role in the Iowa Medical Society demands.

Thus, I am pleased you have invited me to come here to America's heartland. I am proud to bring you official greetings from the oldest and largest national medical organization in this country.

You know, the AMA is a fine, noble and wonderful institution. It is the best hope all of us have to talk with one voice when medicine must talk to the nation as one. But we who lead the AMA have had some difficult times in recent months. So today, I want to tell you just a bit about the changes that have occurred at the AMA and what they mean for you who are active in Iowa.

When we met in December, the AMA Board initiated a number of actions to ensure the AMA's fiscal integrity and strengthen the organization. These actions range from restructuring the Board Finance

Committee to specifically defining the authority of the AMA's executive vice president with respect to fiscal matters.

Also in December, the AMA Board began the process of finding a new EVP by looking ahead to define the association's challenges and leadership needs in the 1990s and to profile the next EVP based on the challenges we believe he or she will face.

On February 9, Dr. James Sammons accelerated the time frame for his 1991 retirement by resigning, effective immediately. I want to underscore that the decision was his alone. Dr. Sammons said he took the action based on what he perceived to be the best interests of the Association, so medical leadership in America can focus on the future. That is exactly what we are doing.

On February 9, the Board named Dr. James Todd as acting executive vice president of the AMA. Jim Todd was on the AMA Board himself before joining the staff 5 years ago and he knows the organization well. He also knows many of you well, and many other leaders of medicine from coast to coast. We are confident he will be an effective leader during this important time.

Meanwhile, the AMA Board has named a search committee to develop a large pool of qualified candidates for the next EVP. The chairman of that committee is Dr. John Ring of Illinois, chairman of our Board of Trustees. The other search committee members are Dr. Joseph Painter of Texas, vice chairman of the Board; Dr. John Clowe of New York, speaker of the AMA House of Delegates; Dr. Stormy Johnson of Louisiana, vice-speaker of the House of Delegates; and yours truly.

*(Continued next page)*





**VERY IMPORTANT PHYSICIANS . . .** John Tupper, M.D., president-elect of the American Medical Association (at left) with the Society's 1990 Merit Award winner Lawrence Goodman, M.D., Marshalltown.

An era in the history of the AMA has ended. We stand now on the threshold of a new era — an era of pitfalls and problems it is true, but an era of opportunity and promise as well.

Actually, it's kind of refreshing to live in interesting times. In Italy for 30 years under the Borgias they had warfare, terror, murder and bloodshed. But they also produced Michelangelo, Leonardo da Vinci and the Renaissance.

On the other hand, Switzerland had brotherly love, 500 years of democracy and peace. What did they produce? The cuckoo clock!

We have made some progress; we have produced a whole lot more than cuckoo clocks. Now it's time for all of us to look ahead together. As we look ahead, you and I know that the overriding frustration of medical leadership today is that medicine alone cannot solve the access problem. But politicians, payors and pundits often act as if we could!

So, we as medical leaders must make it clear to the public that we ALONE cannot

solve all the social ills that too often go hand in hand with illness today. We must make it clear that doctors cannot and will not become the instrument our society employs to ration care.

We must make it clear that though we cannot solve the access problem alone, we can and will take the lead in the long, complex process of tackling the problem piece by piece.

On March 7 in Washington, the AMA publicly announced "Health Access America." This is our proposal for what medical leadership can do to improve access to affordable, quality health care. Those of you who attended our National Leadership Conference in Phoenix back in January have already heard the details of "Health Access America." The rest of you should have gotten additional details from AMA headquarters.

You have a full program today, so I will not take any more of your time. I ask you to support "Health Access America," the AMA and the continued strength of medicine in America.

# Have Slides, Will Travel

**D**R. PASQUALE PALUMBO SPENDS much of his "leisure" time giving continuing medical education presentations and, despite an occasional complaint from his family, he believes unreservedly that his time is well spent. Besides, he's so *good* at it.

Director of the Mayo Clinic Medical Center's Lipid Clinic, Dr. Palumbo was a speaker at this year's IMS Scientific Session. He and Dr. Helmut Schrott of Iowa City staged a good-natured crossfire presentation on "The Cholesterol Controversy." Scientific presentations aren't always of a nature to put an audience in a dither of excitement, but this one certainly held their interest.

Dr. Palumbo attends 50 CME events a year, including local evening meetings. He's gone from his Rochester, Minnesota home 25 weekends annually.

"I got involved in CME through my diabetes and lipid research," he says. "Obviously, I think CME is extremely important — it's also one of the most professionally rewarding things a physician can do."

Dr. Palumbo is a dynamic and energetic speaker, and his presentations are liberally laced with humor and candidly expressed opinion. If he believes something is hogwash, he says so. In the mostly deferential world of CME, this is not the usual fare.

"In the area of cholesterol, there are issues that must be addressed. Physicians in practice must realize there are lots of unknowns besides a patient's cholesterol count. Of course, there's always a problem with differences of opinion on this issue. I've had invitations withdrawn when they found out what I was going to talk about."

Though he believes in the value of CME, Dr. Palumbo believes it doesn't always take the most effective form.



**BACKSTAGE PREPARATIONS . . .** Dr. Pasquale Palumbo of Rochester, Minnesota loads slides into a slide tray prior to his presentation at the IMS Scientific Session April 20. Dr. Palumbo participates in CME activities 25 weekends a year.

"I wish there were a more interactive way to do CME. Lectures are what doctors are used to, but it's not always the best way to learn."

Dr. Palumbo has a definite opinion on what could be done to improve CME.

"The problem we don't address is behavioral change for physicians. Physicians attend a CME event, get the information and understand it. But they are reluctant to apply it to their practice. We must try harder in CME to get at the things that motivate a physician to change in his every day practice," he concludes.





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### **References**

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2. *Br J Clin Pharmacol* 1985;20:710-713
3. *Data on file*, Lilly Research Laboratories.
4. *Scand J Gastroenterol* 1987;22(suppl 136):61-70.
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### **AXID<sup>®</sup>** nizatidine capsules

**Brief Summary.** Consult the package literature for complete information.

**Indications and Usage:** 1. *Active duodenal ulcer*—for up to eight weeks of treatment. Most patients heal within four weeks.

2. *Maintenance therapy*—for healed duodenal ulcer patients at a reduced dosage of 150 mg h.s. The consequences of therapy with Axid for longer than one year are not known.

**Contraindication:** Known hypersensitivity to the drug. Use with caution in patients with hypersensitivity to other H<sub>2</sub>-receptor antagonists.

**Precautions:** *General*—1. Symptomatic response to nizatidine therapy does not preclude the presence of gastric malignancy.

2. Dosage should be reduced in patients with moderate to severe renal insufficiency.

3. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

**Laboratory Tests**—False-positive tests for urobilinogen with Multistix<sup>®</sup> may occur during therapy.

**Drug Interactions**—No interactions have been observed with theophylline, chloridazepoxide, lorazepam, lidocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450 enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increased serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

**Carcinogenesis, Mutagenesis, Impairment of Fertility**—A two-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a two-year study in mice, there was no evidence of a carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given

an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a two-generation, perinatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

**Pregnancy—Teratogenic Effects—Pregnancy Category C**—Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect; but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in one fetus, and at 50 mg/kg, it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in one fetus. There are, however, no adequate and well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

**Nursing Mothers**—Studies in lactating women have shown that 0.1% of an oral dose is secreted in human milk in proportion to plasma concentrations. Because of growth depression in pups reared by treated lactating rats, a decision should be made whether to discontinue nursing or the drug, taking into account the importance of the drug to the mother.

**Pediatric Use**—Safety and effectiveness in children have not been established.

**Use in Elderly Patients**—Healing rates in elderly patients were similar to those in younger age groups as were the rates of adverse events and laboratory test abnormalities. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

**Adverse Reactions:** Clinical trials of varying durations included almost 5,000 patients. Among the more common adverse events in domestic placebo-controlled trials of over 1,900 nizatidine patients and over 1,300 on placebo, sweating (1% vs 0.2%), urticaria (0.5% vs <0.01%), and somnolence (2.4% vs 1.3%) were significantly more common with nizatidine. It was not possible to determine whether a variety of less common events was due to the drug.

**Hepatic**—Hepatocellular injury (elevated liver enzyme tests or alkaline phosphatase) possibly or probably related to nizatidine occurred in some patients. In some cases, there was marked elevation (>500 IU/L in SGOT or SGPT and, in a single instance, SGPT was >2,000 IU/L. The incidence of elevated liver enzymes overall and elevations of up to three times the upper limit of normal, however, did not significantly differ from that in placebo patients. Hepatitis and jaundice have been reported. All abnormalities were reversible after discontinuation of Axid.

**Cardiovascular**—In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in two individuals administered Axid and in three untreated subjects.

**CNS**—Rare cases of reversible mental confusion have been reported.

**Endocrine**—Clinical pharmacology studies and controlled clinical trials showed no evidence of antiandrogenic activity due to nizatidine. Impotence and decreased libido were reported with equal frequency by patients on nizatidine and those on placebo. Gynecomastia has been reported rarely.

**Hematologic**—Fatal thrombocytopenia was reported in a patient treated with nizatidine and another H<sub>2</sub>-receptor antagonist. This patient had previously experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

**Integumentary**—Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

**Hypersensitivity**—As with other H<sub>2</sub>-receptor antagonists, rare cases of anaphylaxis following nizatidine administration have been reported. Because cross-sensitivity among this class has been observed, H<sub>2</sub>-receptor antagonists should not be administered to those with a history of hypersensitivity to these agents. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

**Other**—Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine have been reported.

**Overdosage:** Overdoses of Axid have been reported rarely. If overdosage occurs, activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis for four to six hours increased plasma clearance by approximately 84%.

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Additional information available to the profession on request.



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# New Building, Old Values

ROBERT WHINERY, M.D.

Iowa City, Iowa

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*In his address to the House of Delegates, the incoming IMS president stressed the need to be a good doctor and a good person.*

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I AM VERY PROUD TO SERVE as your IMS president. I think Iowa is a great state and that we have an excellent medical society. We owe a debt of gratitude to Don Rodawig for his excellent year as president. The old adage "I've got big shoes to fill" is certainly true in this case (size 14+!). Don, I am beginning to realize how much of your time and effort were given and we all thank you.

Well, it's Sunday morning and I am going to preach. The sermon will be brief, however, because I know I'm preaching to the choir. It's the physicians who aren't here who need to hear this gospel. My thoughts come from my perspective as your AMA delegate for many years and are related to the present and future practice of medicine.

At the end of my presidential term, I'll speak to the Society's accomplishments. I hope they will include something revolutionary and exciting; but, considering the climate in which we practice, just no backward movement may constitute success.

It will be an enjoyable year because I know our executive staff, trustees and committees are excellent. We'll move into our new building this year, and perhaps it's a good time for me to ask Iowa physicians to



NEW PRESIDENT . . . Robert Whinery, M.D., was installed as IMS president April 23.

add back something old. Medical technology has overwhelmed us and the so-called "art of medicine" has suffered.

To solve our frustrations, we must first solve our patients' frustrations. We must, once again, concentrate on caring for, explaining to and understanding our patients. We can't just be good doctors, we must be good people and good parents. We must be active in organizations, politically involved, civic minded — and visibly so.

If we care about our families, our community and our patients, these patients, friends and neighbors will become our advocates. Only when we return to that status will we find solutions to such problems as the liability crisis, peer review, competition, marketing and increased government intervention. Unfortunately, the process will take time but it is our only hope. Please think about it.



# House Addresses Key Health Issues

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*On April 21-22, physicians from across Iowa gathered for the 1990 IMS House of Delegates. Following is a summary of the proceedings, including key issues considered by delegates.*

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**T**HE 1990 ANNUAL MEETING of the Iowa Medical Society House of Delegates was held April 21-22 in Des Moines. House sessions were chaired by William Rosenfeld, M.D., Speaker. Open hearings were conducted by 3 reference committees on April 21. President Donald Rodawig, M.D. was master of ceremonies for the IMS Annual Banquet April 21.

At the banquet, Lawrence Goodman, M.D., a Marshalltown family physician, received the 1990 IMS Merit Award. The Washington Freeman Peck Award was presented to the Iowa Association of Area Agencies on Aging for their role in implementing Medicare Partners, the Society's voluntary Medicare assignment program.

## ***April 21 Session***

Registered for the April 21 session of the House were 139 delegates and 25 alternate delegates. Minutes of the April 23, 1989 House of Delegates session were approved as summarized in the July, 1989 issue of *IOWA MEDICINE*.

Reports contained in the 1990 House of Delegates handbook were approved with the exception of those from the Judicial Council,

the Committee on Election Process and Terms of Office, the Committee on Delivery of Health Services and the Subcommittee on Psychiatric Care. These were referred to appropriate reference committees.

John Tupper, M.D., president-elect of the American Medical Association, addressed the House concerning the growth of the AMA and the role of the AMA in addressing problems facing the medical profession.

Bruce Trimble, M.D., chairman, IMS Board of Trustees, presented checks totaling over \$11,000 to Carol Aschenbrener, M.D., senior associate dean of the University of Iowa College of Medicine. The funds were provided by the AMA Educational and Research Foundation, with most of the funds raised through the efforts of the IMS Auxiliary. Over half the money is designated for medical student assistance; the remainder can be used at the discretion of the Board.

Outgoing president Donald Rodawig, M.D. addressed the House. His remarks are printed elsewhere in this issue.

Thirty-one resolutions were formally introduced and referred to reference committees. Action taken on these resolutions are reported subsequently.

## ***Supplemental Reports***

The following reports were made to the 1990 House of Delegates:

**Board of Trustees**, by Bruce Trimble, M.D., chairman. The report covered the growth of the IMS during the past decade and future directions.

**Necrology Report**, by Robert Kent, M.D., chairman, Judicial Council.

**Nominating Committee**, by Lawrence Goodman, M.D., chairman. The 1990 officer slate was read.

**Committee on Legislation**, by Randy Winston, M.D., chairman. Dr. Winston discussed the 1990 legislative session, which he said was a successful one for the IMS and was highlighted by passage of 2 IMS public health priorities.

**Iowa Medical Political Action Committee**, by Jackson Ver Steeg, M.D., chairman.

**Iowa Medical Foundation**, by Bruce Trimble, M.D., president. The Cerro Gordo County Medical Society presented a \$15,000 check to the Foundation, the interest of which is to be used for loans to medical students from northern Iowa.

**IMS Services**, by Donald Rodawig, M.D., president. Dr. Rodawig reported the growth in the number of physicians using programs and services available through IMS Services.

**Iowa Physicians Mutual Insurance Trust**, by Dennis Walter, M.D., board president. Dr. Walter discussed improvements in reinsurance and tail coverage, plus IPMIT's risk management efforts.

**Blue Cross/Blue Shield**, by Clarkson Kelly, M.D., second vice chairman of the new BC/BS board. An update on the BC/BS "Caring Program for Children" was provided.

**Iowa Foundation for Medical Care**, by James Gilson, M.D., president.

**AMA Activities**, by John Anderson, M.D., chairman of the Iowa delegation to the American Medical Association. Dr. Anderson announced that, for the 14th consecutive year, the IMS has been recognized for increasing the number of its members who also belong to the AMA.

### **Life Members**

The following physicians were elected to Life Membership in the Iowa Medical Society:

**Frederic Loomis, M.D., Robert Miller, M.D. and Thomas Thornton, Jr., M.D.**, Waterloo; **Walter Hanson, M.D.**, Mason City; **Wilton Willett, M.D.**, Manchester; **Paul Skelley, M.D.**, Dubuque.

**Hugo Lindholm, M.D.**, Estherville; **Arthur Grandinetti, M.D.**, Oelwein; **Varina**



**MEET THE PRESS . . .** Donald Rodawig, M.D. (at right), IMS immediate past president, is interviewed by DES MOINES REGISTER reporter Tom Carney during Friday's Scientific Session.

**Des Marias, M.D.**, Grundy Center; **Frederick Blodi, M.D.**, Iowa City.

**Raymond McIllece, M.D.**, Fort Madison; **Richard Bausch, M.D. and Regis Weland, M.D.**, Cedar Rapids; **John Downing, M.D.**, Marion; **Lawrence Goodman, M.D.**, Marshalltown.

**Charles Sokol, M.D.**, State Center; **John Bakody, M.D. and Robert Hayne, M.D.**, Des Moines; **Dwight Sattler, M.D.**, Kalona; and **Burdette Osten, M.D.**, Northwood.

Emeritus Membership in the Iowa Medical Society was accorded to 53 physicians.

The speaker presented information on the reference committee hearings, election procedures and the concluding session of the House.

### **April 22 Session**

Registered for the April 22 session of the House were 121 delegates and 18 alternate delegates. Minutes of the April 21 session were read and approved.

Patti Dolezal, immediate past president of the IMS Auxiliary, spoke to the delegates about Auxiliary projects during her term.

The following physicians were announced as having been elected or reelected to the positions noted:

*(Continued next page)*



**President-Elect:** R. Bruce Trimble, M.D., Mason City.

**Vice-President:** Joseph Hall, M.D., Des Moines.

**Speaker of the House:** William Rosenfeld, M.D., Mason City.

**Vice Speaker of the House:** Donald Kahle, M.D., Dubuque.

**Trustee:** James White, M.D., Dubuque.

**AMA Delegates:** Clarence Denser, Jr., M.D., Des Moines; Donald Young, M.D., Des Moines and John Rhodes, M.D., Poca-hontas.

**AMA Alternate Delegates:** Clarkson Kelly, Jr., M.D., Charles City and Dennis Walter, M.D., Des Moines.

Six District Councilors were also chosen during annual elections: **District II** — Kenneth Dolan, M.D., Iowa City; **District IV** — Albert Coates, M.D., Cedar Rapids; **District V** — Ross Madden, M.D., Dubuque; **District VIII** — Lester Beachy, M.D., Des Moines; **District IX** — Don Green, M.D., Des Moines; **District XV** — Tom Throckmorton, M.D., Spencer.

The speaker complimented the reference committees. Following adjournment of the



**AN ENJOYABLE EVENING . . .** Donald Rodawig, M.D., past president, was master of ceremonies for the April 21 Annual Banquet. Special guests included Governor Terry Branstad and U.S. Congressman Tom Tauke.

House of Delegates, Robert Whinery, M.D. was installed as president of the IMS for the coming year. His inaugural comments are published elsewhere in this issue. Organizational meetings of the Board of Trustees and Judicial Council occurred following Dr. Whinery's installation.

### *House Actions*

The IMS will take the following actions based on House consideration of reports of the Reference Committee on Legislation, the Reference Committee on Medical Service and Miscellaneous Business and the Reference Committee on Reports of Officers:

- Accept the Board of Trustees recommendation that IMS 1991 dues are to remain at \$350 per member.
- Approve a plan to adjust dues yearly by no more than the Consumer Price Index and that this policy be implemented for the 1992 dues year.
- Commend the IMS Board of Trustees for its prudent financial management and adoption of a formalized fiscal control policy.
- Affirm that the current IMS election process is democratic and should continue as is.
- Direct the Board to evaluate the House of Delegates/Scientific Session format and make any necessary changes.



**SPECIAL PRESENTATION . . .** Paul Gordon, M.D. (left), president of the Cerro Gordo County Medical Society, presents a check to Bruce Trimble, M.D., president, Iowa Medical Foundation. The Cerro Gordo County Medical Society donated \$15,000 to the Foundation to use for medical student loans.

- Approve a plan to elect a third alternate delegate to the American Medical Association with past presidents and other officers encouraged to seek the office.

- Authorize the Board to appoint an ad hoc committee to investigate the possibility of compensating officers and submit recommendations to Board and 1991 House of Delegates.

- Approved several recommendations of the Ad Hoc Committee on the election process.

- Endorse the concept of an Iowa Utilization Assessment Program under the auspices of the Iowa Medical Foundation to acquire small area analysis data and establish specialty study groups.

- Direct the Board to evaluate funding options and proceed with implementation of an Iowa Utilization Assessment Program, if adequate funding is available.

- Direct the IMS to select a task force to work with the 1990 interim Senate committee debating forensic medicine funding.

- Direct the IMS to select a forensic medicine committee to develop a systematic forensic medicine service, including physician educators.

- Direct the IMS to reaffirm its commitment to address the issue of access to medical care.

- Reaffirm IMS support of recommendations of the IMS Committee on Access to Medical Care for the Uninsured and Underinsured.

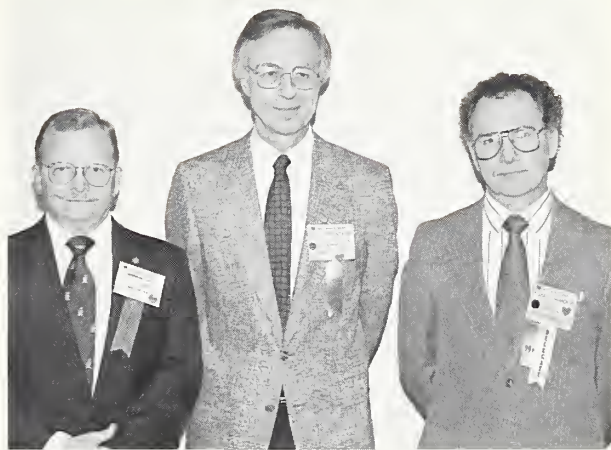
- Approve support for the efforts of the AMA in developing the Health Access America Campaign.

- Acknowledge that most physicians believe a pluralistic system of health care is preferable to a single-source system.

- Encourage the IMS Board to investigate additional methods to enhance IMS liaison with other health care provider groups.

- Support AMA efforts to urge the Accreditation Council for Graduate Medical Education to direct its residency review committees in each specialty to develop standards for resident work schedules.

- Recommend that individual physicians acquaint themselves with the substance of H.F. 2564 and consider letting the governor know of their opinions of various portions of the bill.



**REFERENCE COMMITTEES . . . 1990 Reference Committee chairmen (from left) Dennis Mallory, D.O., Reference Committee on Officer Reports; Dale Robertson, M.D., Reference Committee on Medical Service; and Edward Hannon, M.D., Reference Committee on Legislation.**

- Consider development of a formalized physician recruitment program.

- Direct the IMS to provide all IMS Judicial Councilors, prior to their caucus, a report on resolutions received.

- Endorse the concept that physicians who advertise specialty services and who claim certification should include the certifying organization in the advertisement.

- Strongly urge physicians to abide by opinion 5.01 and 5.02 of the AMA's Council on Ethical and Judicial Affairs regarding advertising.

- Direct the IMS to amend its bylaws to limit the office of trustee to 2, 3-year terms.

- Direct the IMS to work to ensure full disclosure of criteria used for utilization review; and, in case of failure, go to the media and public advocacy groups.

- Direct the IMS to consider development of state legislation requiring licensure of utilization review organizations.

- Direct the IMS to review laws relating to liability of physicians involved in peer review.

- Direct the IMS to monitor the Medicare Peer Review Organization rating system implemented by the Iowa Foundation for Medical Care and report to the 1991 House of Delegates.

*(Continued next page)*





**SUCCESSFUL IPMIT SESSION . . .** On Saturday afternoon, Iowa Physicians Mutual Insurance Trust (IPMIT) held a well attended seminar on handling the stress of a lawsuit. Pictured at right is seminar speaker Joyce Keen, Ph.D.

- The IMS is to continue working with the Iowa Foundation for Medical Care to assure the appropriateness and adequacy of utilization and quality screens recognizing the validity of individual medical judgment.

- Request Iowa specialty societies to designate physicians to assist the IMS in working with third party payor and utilization review issues, including the appropriateness of Iowa Foundation for Medical Care utilization and quality screens.

- The IMS is to work with member physicians and the Iowa Foundation for Medical Care to improve physician documentation and IFMC documentation.

- IMS and Iowa Foundation for Medical Care representatives are to be made available to meet with county specialty societies, specialty societies and hospital medical staffs to discuss concerns.

- The IMS is to encourage local physician peer review.

- The IMS is to continue to protect physician/patient relationships and the quality of care from undue influence by third party payors and utilization review organizations.

- Direct the IMS to work with third-party payors to evaluate feasibility of regionalized experience-rated health and accident insurance and submit a report to the Executive Council or House of Delegates in 1991.

- The IMS is to work with the Iowa Hospital Association and the Iowa Department of Human Services to work toward more equitable Medicaid reimbursement for hospitals.

- The IMS is to encourage all physicians to participate in Medicaid to the extent possible given their practice circumstances.

- The IMS is to observe the experience of the MediPASS pilot program and encourage physicians to participate.

- The IMS is to encourage the state to continue improving Medicaid reimbursement for physicians.

- Takes the formal position that the state of Iowa should apply the same public health measures to contain the HIV epidemic as are used to control the spread of other sexually transmitted diseases.

- Takes the formal position that physicians be permitted to test patients for HIV as they currently test for other infections.

- Directs the IMS to recommend that the Office of State Medical Examiner be sufficiently funded to support the statutory responsibilities of teaching, rulemaking and record keeping.

- The IMS is to provide information and assistance to the legislature regarding forensic medical services.

- The IMS is to support efforts of the American Medical Association to assure regulation of physician office labs is reasonable.

- Direct continued support of adequate funding of Iowa's mental health institutions and community-based programs.

- The IMS is to consider legislation to protect assets of federally qualified pension funds from civil liability awards.

- The IMS is to strongly support recommendations contained in the report of the Committee on Delivery of Health Services.

- Direct the IMS to request the University of Iowa College of Medicine to continue providing an annual update on medical manpower developments to the IMS Committee on Delivery of Health Services.

- Direct the IMS to work with Iowa's physician training programs to expose medical students to advantages of practicing in Iowa.

- Direct the IMS to develop a mechanism whereby graduating medical students

are contacted regarding their location and specialty decisions.

- Refer Resolution 31 (regarding H.F. 2564 and standards for substance abuse treatment programs) to the appropriate committee.

- Direct the appropriate IMS committee to formulate a policy statement on the drug problem.

- Direct the IMS to encourage the University of Iowa College of Medicine to involve students and residents in detection and treatment of addictive and dangerous drug use.

- Direct the appropriate IMS committee to investigate development of an alcohol/drug addiction screening/identification program.

- Encourage physician members to become involved in local efforts to establish a post-trauma debriefing intervention plan.

- Direct the IMS to become more involved with development and implementation of long term care policy, and develop an action plan for such involvement.

- The appropriate IMS committee is to review existing programs which address child/adolescent violence issues and make

recommendations for possible physician involvement.

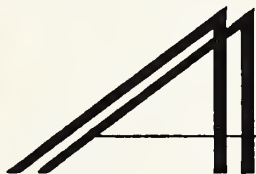
- The IMS is to recognize that improper disposal of disposable diapers poses a health risk and encourage greater public education about this risk.



**A FAMILY PORTRAIT . . .** The family of Dr. and Mrs. Donald Rodawig took advantage of annual meeting week-end to hold a reunion. The Rodawig family posed for this photograph in the presidential suite on Saturday, April 21. Dr. and Mrs. Rodawig are seated in front.

- **Medicare woes?**
- **Cash flow problems?**
- **Financial decisions?**
- **CPT - ICD - 9 questions?**

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## Eldon Huston

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Questions and Answers



# A Democratic Process

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*The Society's Executive Vice President, an IMS employee for over 30 years, discusses how Iowa physicians can affect health care policy and the preparation which goes into the IMS Annual Meeting.*

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### **What is the participation level in the House of Delegates?**

The participation level is good, but it could be better. Many knowledgeable, dedicated physicians return as delegates for several years. These physicians have a good understanding of the issues and a real concern for the profession and the public interest.

Unfortunately, between 30 and 40 Iowa counties do not send a delegate and several large counties do not send a full delegation. However, specialty representation is in line with physician specialty population statewide.

### **Why is it important for physicians to be involved in the House of Delegates?**

In the policy-making arena, the Iowa Medical Society speaks for approximately 90% of practicing Iowa physicians. Consequently, it is absolutely crucial for physicians to be a part of this democratic process and give IMS leaders the grassroots input of as many physicians as possible in formulating policy for the profession.

### **What changes or trends have you noticed in the House of Delegates during your time with the IMS?**

Health care issues have come into the public eye increasingly over the years and have become a high legislative priority in Iowa and nationally. Many issues which were once dealt with on the state level are now federal issues.

Delegates to the IMS House are younger and I've seen an increasing concentration of delegates in 16 counties which account for about 75% of physician members.

### **How does the staff prepare for the House of Delegates meeting?**

Very carefully! The greatest concentration of work occurs in the 2 months prior to the House of Delegates, but many of the year-round activities on a staff level also help us prepare for the meeting. We are fortunate to have good staff longevity and a good understanding of individual roles.

The executive staff is heavily involved in the logistics of the election process and background research regarding various resolutions. The staff also devotes much time to the printing and assembly of the handbook reports, supplemental reports and resolutions which are provided to the delegates.

During the meeting itself, the entire staff is expected to pitch in — absolutely no exceptions! Fortunately, there is a feeling of camaraderie which makes the work more pleasant and the staff, we believe, more productive.



# AIM HIGH



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# The Cholesterol Controversy

HELMUT SCHROTT, M.D.

Iowa City, Iowa

PASQUALE PALUMBO, M.D.

Rochester, Minnesota

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*These excerpts from an IMS Scientific Session on April 20, 1990 present 2 points of view regarding treatment of high cholesterol.*

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**T**ODAY WE WILL DISCUSS the relationship of cholesterol and coronary disease. Data from the Framingham study shows that, as the cholesterol level rises, there is an increase in coronary disease. When the blood cholesterol is 300, the risk of coronary disease is 4 times greater than at 200.

The National Cholesterol Education Program (NCEP) was formed in 1986. They established panels — the adult treatment panel, the lipid standardization panel, the panel on treatment of children and adolescents and a panel on the general population. The adult treatment panel was established to develop guidelines for detection, classification and treatment of high cholesterol.

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Dr. Schrott is an associate professor of internal/preventive medicine at the University of Iowa College of Medicine. Dr. Palumbo is director of the Mayo Clinic Medical Center's lipid clinic in Rochester, Minnesota.

The NCEP recommends a cholesterol test for all adults over age 20. The NCEP also recommends tests for children and adolescents of high risk families. However, some people have suggested one-third to two-thirds of children with high lipids would be missed. I believe we need more data and research in this area.

The NCEP suggests cholesterol levels less than 200 are desirable, 200-239 a borderline risk and over 240 distinctly too high. People with levels under 200 should probably have a cholesterol test every 5 years because with age and increased weight there is a rise in cholesterol level. If one maintains a lean status with advance in age, the rise in cholesterol is muted or does not occur.

The NCEP suggests providing diet information for people between 200-239 who don't have coronary disease. The problem with this recommendation is their definition of a high risk status is a HDL cholesterol of under 35; males need only one other risk factor. I would probably do a lipid profile in individuals — especially males — who have a cholesterol level between 200-239.

Calculation of LDL cholesterol with the lipid profile has to be done in a fasting state after 12 hours — total cholesterol minus HDL minus triglycerides divided by 5. This gives an approximation of the LDL cholesterol.

For patients whose cholesterol level is 200-239 who have heart disease or other risk factors, or for patients over 240, NCEP suggests doing lipid profiles and determining the LDL cholesterol. The new numbers we have to remember are: if the cholesterol count is under

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130, that's great. If it's over 160, that's too high. The grey zone borderline high risk area is 130-159.

The NCEP recommends first to institute diet therapy for at least 6 months. If the patient has evolving coronary disease, you might try

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*'The new numbers to remember are: if the cholesterol is under 130, that's great; if it's over 160, that's too high. The borderline high risk area is 130-159.'*

**Helmut Schrott, M.D.**

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diet and drugs almost at the same time. NCEP advises drug therapy when LDL cholesterol is greater than 190 mg/dl in patients free of heart disease. That's equivalent to a total cholesterol of 265. With coronary heart disease or other risk factors, NCEP lowers their recommendation for initiation of drugs to an LDL of 160.

— Helmut Schrott, M.D., Iowa City, Iowa.

**I** REALIZE MY OBSERVATIONS will generate controversy, and I'll describe my concerns about the NCEP up front. Obviously, the data are solid for middle aged men 20-59. I'm not going to contest that lowering cholesterol in this age group shows an effect on cardiovascular mortality. However, if you follow NCEP guidelines, you will be treating an estimated 60 million Americans for high cholesterol. This translates into billions of dollars in health care.

The relationship of cholesterol levels to coronary disease has been well known for years. The assumption that reduction of cholesterol levels would reduce the risk of coronary disease has been borne out by recent clinical trials. However, although coronary heart disease risk may be reduced, an effect on total mortality has been difficult to demonstrate. In addition, the emphasis on the small number of significant changes in cardiovascular morbidity and mortality in individuals treated with a lipid-lowering agent ignores the large number of participants in the clinical trials who did not benefit from the treatment.

The occurrence of side effects from treatment are not insignificant. The cost effectiveness of treating a large number of individuals to benefit approximately 10% of them is also an important consideration.

The NCEP has promulgated guidelines for serum cholesterol levels which apply most appropriately to high risk individuals — men under 60 years old and men and women with a family history of premature atherogenesis. In emphasizing cholesterol levels as the major risk factor to coronary heart disease, the NCEP tends to de-emphasize other risk factors for coronary heart disease, namely, the apoproteins themselves, Lp(a), triglyceride levels, HDL-cholesterol, smoking, diabetes, hypertension, age, genes, stress and sedentary lifestyle. These other risk factors have a greater effect on cardiovascular morbidity and mortality than cholesterol alone.

Furthermore, laboratory variability in measurement of serum cholesterol makes interpretation of a single serum cholesterol level difficult. A profile of serum cholesterol levels is essential to determine whether significant hypercholesterolemia is present. The determination of triglyceride levels assists with finding appropriate interventions. Primary hypercholesterolemia with normal serum triglyceride levels is less likely to respond to dietary intervention. Such patients require antilipid medication if persistent, significant hypercholesterolemia is demonstrated.

It never has been demonstrated by clinical trial that lowering serum cholesterol reduces cardiovascular morbidity and mortality and all-cause mortality in men over 60 or women of any age. All extant trials have been in men ages 30-59. If NCEP guidelines for cholesterol levels are applied to those over 60, a large proportion will require antilipid medication.

Recent estimates indicate 24 million Americans over 60 will require such treatment. The cost would be staggering. It is essential to demonstrate a beneficial effect on cardiovascular morbidity and mortality and total mortality in individuals over 60 and in women of all ages before embarking on an aggressive campaign to lower cholesterol to the NCEP levels. Although a fat and cholesterol controlled diet may be risk free in those over 60, exercise may pose hazards depending on the health status of the individual. Lipid-lowering medications may have undesirable side effects.

Clinical judgment remains an essential component in management of hypercholesterolemia and other risk factors. No arbitrary level of serum cholesterol should be the sole factor in determining management of a patient. More vigorous attention to risk factors other than cholesterol levels is indicated in all

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*'If you follow the NCEP guidelines, you will be treating an estimated 60 million Americans for high cholesterol. This translates into billions of dollars in health care.'*

**Pasquale Palumbo, M.D.**

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individuals and particularly in high risk individuals. It is important to correct other risk factors before initiating treatment with lipid-lowering medications.

Whether reduction of serum cholesterol levels will produce regression of atherosclerotic disease remains moot. The data purported to show such regression are subject to question from the standpoint of ability to demonstrate regression by angiographic methods. Even if graft patency after coronary artery bypass graft is improved by treatment of cholesterol levels, an effect on survivorship is yet to be clearly demonstrated.

Cholesterol levels must be interpreted in light of age, sex, family history of heart disease, previous coronary artery surgery or other revascularization procedure and other risk factors such as smoking, diabetes, hypertension and obesity. Looking to cholesterol alone for prevention of coronary heart disease represents a flawed one-issue campaign of the NCEP. — *Pasquale Palumbo, M.D., Rochester, Minnesota.*

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Palumbo, PJ: Cholesterol lowering for all: a closer look. *JAMA* 1989;262:91.

Bret, AS: Treating hypercholesterolemia: how should practicing physicians interpret the published data for patients? *New Eng J Med* 1989;321:676.

## **Manuscript Information for Authors**

Papers submitted must be double spaced; triple spaced between paragraphs on 8½ x 11 pages. A title page and a short abstract summarizing the article should be included. Due to space constraints, brief papers (ideal length is 5 double spaced typewritten pages) have a better chance of timely publication. If possible, 2 copies should be submitted.

All persons designated as authors of a particular article should have participated sufficiently in the work to take public responsibility for the concept.

The paper will be reviewed by the publications committee and a follow-up letter will be sent to the author, either accepting or rejecting the article.

All material is subject to editing by the staff copy editor to assure clarity and good grammar and to conform to *IOWA MEDICINE* style and format. The author will receive galley proof of the paper prior to publication to check for inaccuracies, but no rewriting may be done after the manuscript is set in galleys.

Please follow the reference list style as published in current issues of *IOWA MEDICINE*. If the reference list contains more than 10 references, it will not be published with the paper but retained at *IOWA MEDICINE* and copied upon request.

Tables should be numbered and typed on a separate sheet. They should supplement, not duplicate, the text. Considering the production cost of tables and photos, only a limited number can be accepted with each article.

Photos should be black and white glossy prints. Some color photos are acceptable if the contrast is good.

Line drawings are acceptable if they are dark and can be reduced to fit in one column.

*IOWA MEDICINE* accepts only material which has not been submitted or published elsewhere. When a paper is accepted for publication, the editors reserve the right to publish it when appropriate or when space is available. Papers submitted by IMS physician members are given first priority.

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# Postpartum Pneumoperitoneum

JOHN ELY, M.D.  
LINDA ILER, M.D.  
Lake City, Iowa

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*The authors discuss the case of a 34-year-old woman who developed a pneumoperitoneum 48 hours after vaginal delivery.*

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**P**OSTPARTUM PNEUMOPERITONEUM IS A RARE but well-described phenomenon usually occurring in association with knee-chest exercises or sexual intercourse.<sup>1-9</sup> We report a case unique for its close temporal relation to delivery (48 hours) and its inciting activity ("holding back" during painful defecation).

## Case Report

A 34-year-old gravida 3 para 2 white woman was admitted at 39 weeks gestation after 2 hours of irregular contractions. Her cervix was 4 centimeters dilated, vertex presentation, -1 station. Amniotomy was performed 3 hours after admission and clear fluid was noted. She developed a prolonged active phase of labor and 11 hours after admission (cervix 7 centimeters) a foley catheter was placed, an enema administered and oxytocin augmentation initiated. Twelve hours after admission she had a spontaneous vaginal delivery of a 4337 gram viable male infant.

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Dr. Ely and Dr. Iler are family practice physicians at McCrary-Rost Clinic in Lake City.

Forty-eight hours after delivery the patient had a constipated stool. She tried to prevent its quick passage by rapidly inspiring and avoiding the usual Valsalva maneuver; she rocked from side to side during these efforts. When she stood up, she had a sudden sharp pain at her lower anterior rib margins with radiation to the tops of her shoulders and the right side of her neck.

Her vital signs (temperature 37 degrees celsius, heart rate 90, respiratory rate 20, blood pressure 130/72) were unremarkable and her abdomen was non-tender with no peritoneal signs. The white blood cell count was 10,400/cubic millimeter with 65% neutrophils and 32% lymphocytes. A chest x-ray showed a pneumoperitoneum (Figure 1). Her pain resolved over the next 2 days and she was discharged on the fourth postpartum day. She denied assuming a knee-chest or other head-down position.

## Discussion

The ability of air to enter the peritoneal cavity through the uterus and fallopian tubes and cause a pneumoperitoneum has been known since 1875.<sup>1</sup> Precipitating events include douching, intercourse, orogenital insufflation, Rubin's test, pelvic examination and postpartum knee-chest exercises.<sup>2-13</sup> Dodek was the first to describe pneumoperitoneum in the postpartum period and 10 cases have now been reported (Table 1).<sup>1</sup>

The usual clinical picture is that of a postpartum patient who develops sudden typical diaphragmatic pain with shoulder radiation immediately after returning to an upright posture following knee-chest exercises. A chest x-ray shows a pneumoperitoneum. Surprised by the lack of peritoneal signs, her physicians elect

to observe her closely in the hospital while the pain resolves over the next 2-3 days. All reported cases associated with the knee-chest position occurred during the 1950s and early 1960s when such exercises were recommended to return a retroverted uterus to the anteverted position.<sup>4</sup> Many causes of pneumoperitoneum have been listed by Miller.<sup>14</sup>

Several investigators have demonstrated the production of a negative intraperitoneal pressure during head-down positioning. Overholt measured an intraperitoneal pressure of minus 127 mm of water in a dog in the head-down position.<sup>15</sup> Eisenmenger inserted a balloon into his own rectum and measured a pressure of minus 60 mm of water in the knee-elbow position.<sup>16</sup> In addition, Wright reported a pneumoperitoneum in a 25-year-old woman, not postpartum, after she bent over to tie her shoes.<sup>17</sup> The cause of our patient's pneumoperitoneum is unknown. We speculate in trying to "hold back" a painful bowel movement she produced a momentary negative intraperitoneal pressure.

Knee-chest exercises in the postpartum period have resulted in fatal air embolism.<sup>18</sup> Additionally, the position has resulted in paraplegia and quadriplegia due to compromised circulation to the spinal cord. This probably occurs with hyperextension and rotation of the neck.<sup>19</sup>

## Conclusion

The outcome of postpartum pneumoperitoneum is uniformly good. The only real danger is that the patient will be subjected to an

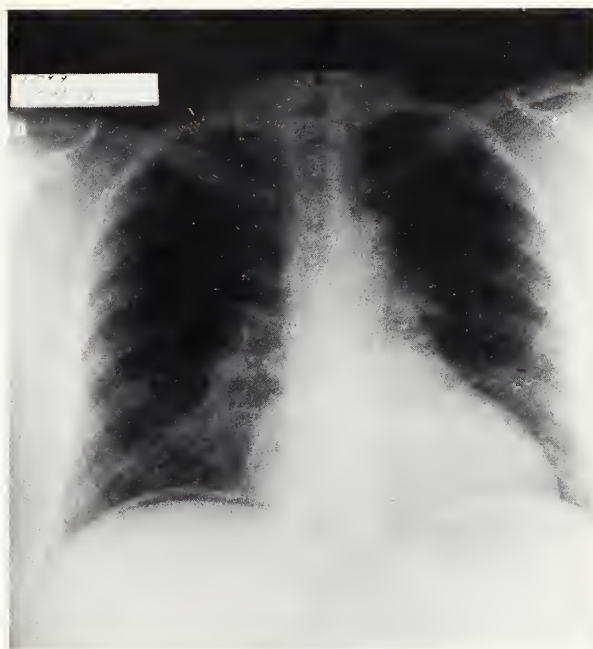


Figure 1. Chest x-ray 48 hours postpartum showing air under right hemidiaphragm.

unnecessary laparotomy. However, fatal air embolism has been reported after knee-chest exercises, which are still recommended in the lay literature.<sup>20</sup> Assumption of this position in the postpartum period is clearly contraindicated.

## References

References noted in this article are available from the authors or the editors of *IOWA MEDICINE*.

TABLE 1  
CASES OF POSTPARTUM PNEUMOPERITONEUM

Author	Year of Report	Age	Parity	No. of Days Postpartum	Inciting Event	Laparotomy Done?
Dodek (1)	1953	25	1	28	bending over to move small table	no
Bean L (2)	1954	23	2	13	knee-chest exercises	yes
Lozman (3)	1956	21	1	9	knee-chest exercises	no
Conn (4)	1956	22	1	35	knee-chest exercises	no
Bean W (5)	1958	26	3	21	knee-chest exercises	no
Worley (6)	1961	33	4	21	knee-chest exercises	no
Lapin (7)	1962	31	2	42	knee-chest exercises	yes
Drevets (8)	1968	20	1	37	sexual intercourse	no
Angel (9)	1988	16	1	42	sexual intercourse	no
Present case	1989	34	3	2	"holding back" defecation	no





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## Marion E. Alberts, M.D.

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The Editor Comments



# Growth

THE BEAUTY OF THE SPRING SEASON is enhanced by warm sunshine and gentle rains. Before the blistering heat of summer engulfs us, the flowers and trees burst forth. It is a time for planting the seeds we hope will mature to the bountiful harvest of grains, fruits, vegetables and flowers. It is the beginning of a new season.

The phenomenon of growth has always fascinated me. My medical education fixed that fascination more firmly and pediatrics became my choice of medical endeavor. Growth and development are the keystones of pediatrics, for any alterations of those parameters of life are of concern. Whether it be the challenge of the infant who fails to thrive or the effects of illness on normal growth progress, the pediatrician is concerned with milestones that denote the stages of development. We are increasingly involved with the growth of our patients' moral fiber. The curse of drugs and lawlessness has become great.

Numerous metaphors exemplify the phenomenon of growth. The American psychologist and philosopher, William James (1842-1910) compared growth to development of human potential by the effect of positive habits: "Sow an act and you reap a habit; sow a habit and you reap a character; sow a character and you reap a destiny." There are negative habits which may be abusive to our physical and mental state, but there are the good habits which contribute to our well-being. Such habits can provide a fulfillment of life that will remain to our day of death.

Our profession deals with the vicissitudes of life. We see the effects of genetic factors in the newborn — some good, some

not so good. As growth progresses to maturity the effects of life patterns become evident. Proper genetics, good nutrition and an absence of noxious factors enhance the continuing process. That growth with which we are concerned is physical as well as moral. We see all forms of crippling disease and injury. We see aberrations of the psyche and the variants of habits. Each of us is bonded to the task of giving aid to those who need cultivation of their growth process, be it rendering medical advice and treatment or counseling those in need of psychological or spiritual nurturing. The seeds are given to us, often already planted, and we must aid the inevitable harvest.

However, the assistance we provide our patients in this phenomenon of growth should not be our only concern. We, too, must realize that our personal life is a factor. As we serve our patients each day our growth process continues — it may be enhanced by our deeds, or devastated. We have a responsibility that can be awesome, but we are trained to accept it. I read somewhere that "some people grow under responsibility, others merely swell." Do not let your responsibility degenerate to mere swelling. Grow with your responsibility and the harvest you reap will be bountiful.

Emerson compared the ritual of spring gardening to his growth in attitude toward life. We can develop his healthy attitude as we deal with our patients and colleagues.

*"When I go into my garden with a spade and dig a bed, I feel such an exhilaration and health that I discover that I have been defrauding myself all this time in letting others do for me what I should have done with my own hands."*  
— M.E.A.



# Health Care Coverage That Wasn't Born Yesterday

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## Ethics "Experts" and The Media

TO BE A "CARD-CARRYING ethicist" (as some of my College of Medicine colleagues occasionally introduce me) puts me and other professionals in biomedical ethics in a strange position. On one hand, all of us have specialized professional training in biomedical ethics, many of us do ethics consultations in problematic clinical cases and most of us have Ph.D. degrees in ethics (some persons in the field have M.D., J.D. or R.N. degrees). On the other hand, many of us eschew the "expert" label by pointing out that ethics is everybody's business, no matter what an individual's occupation or profession may be.

Two recent events involving the media illustrate the problem. One event was an unusual medical case in California. Abe and Mary Ayala, having a 17-year-old daughter with chronic myelogenous leukemia, decided to have another child in the hope the second child could serve as a bone marrow donor for their daughter. All family members had been found to be incompatible donors and transplant registries had failed to come up with a suitable match.

Mary Ayala was quoted as saying "ethical questions never came into my mind" when they were considering the pregnancy. She and her husband were bothered by the national attention given to the views of "critics, experts, or Boston professors" who voiced ethical concerns about the case. The ethics "experts" quoted in the media are professors at Boston University, the University of Minnesota and Notre Dame, and none of them was directly involved in the case.

The second event was the publication on February 25, 1990, of 5 hypothetical medical dilemmas in the *Des Moines Register*, followed by the publication on April 8 of readers' comments on the cases. Included in the April article were the solicited views of 3 professionals who were described as being familiar with some of the ethical problems in medicine. I declined the journalist's request for comments on the cases, as did some physicians and attorneys in health law.

I am not aware of negative responses to the *Register's* publication of professionals' views, and fortunately the paper did not describe the 3 persons as "experts." By contrast, the national media did use the "expert" language, and one letter to AMERICAN MEDICAL NEWS (April 27) complained that in the Ayala case the ethicists quoted had "no moral right or authority to humiliate and embarrass private citizens via comments in nationally distributed publications."

I use these examples to share 2 concerns about some of my colleagues in biomedical ethics. First, I am sometimes disturbed by the facile, off-the-top-of-the-head, shoot-from-the-lip comments made in the media by some of my national colleagues. Second, I am not sure how much is to be gained by having individuals, whether professionals or not, comment on briefly described, hypothetical cases. Given the complexity of many medical cases and the high personal stakes for the individuals involved, I am much more inclined to want to get the medical facts straight and to concentrate on the ethical issues involved in real-life cases. That, unfortunately, is sometimes hard to do in the center of the media spotlight.

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This column is written by Robert Weir, Ph.D., director of biomedical ethics for the University of Iowa College of Medicine.



# Disaster Recovery Planning

AS WE DISCUSSED in a recent column, telecommunications is an important consideration in risk analysis for the medical practice. If your data processing system goes down, you can probably continue to provide services; but what happens if your phone system is gone?

Like good health, we tend to take good fortune for granted. This is especially true with telecommunications systems and services. However, the loss of a major switching center in the midwest in the summer of 1988 taught us to be more skeptical. We learned no communications can mean no business!

In a health care facility, no communication can mean loss of life! Every realistic precaution must be taken to assure integrity of critical systems in the event of a catastrophic event (e.g., tornado, earthquake, flood, fire, etc.). By our definition, critical systems include life support, computer and telecommunications systems.

Careful planning can avoid disastrous consequences in the event of crisis. Your disaster prevention and recovery program should provide a thorough evaluation of your telecommunications operations. You should identify where you are most vulnerable and find ways to minimize the damage potential. Once the analysis is complete, you should be able to identify the areas of vulnerability and the possible consequences of a disaster.

Specifically, you need to:

- *Investigate your telecommunications operations:* Interview key personnel and analyze the process and methods of communications and their relative importance. This process should also include an understanding of your own responsibilities.

- *Identify areas of vulnerability:* Locate the key elements of your systems and network. Identify the vendors supporting these elements and the routing of lines and services connecting you to the outside world. You should focus on what elements must remain

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*'Careful planning can avoid disastrous consequences in the event of crisis.'*

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functional if disaster strikes. The purpose behind this is to become an "informed" decision maker, prepared to make correct and appropriate decisions for your organization. This information will give you leverage in crisis situations and lends credibility to your practice.

- *Develop a disaster recovery plan:* Develop a list of specific steps to minimize the impact of a major disaster. This includes preventive measures to avoid disasters and establishment of escalation procedures within and outside the organization to deal with a catastrophic failure. Simple systems and processes can be employed to avert disaster.

- *Test the disaster recovery plan:* Avoid the greatest catastrophe — a disaster recovery plan that doesn't work. You must test the plan via simulations. Also develop a list of specific steps you can take to minimize the impact of a major disaster such as: prioritize operations and communications requirements, determine backup strategy, develop escalation procedures both within and outside the organization, develop written agreement for provision of temporary and/or spare equipment, develop testing procedures, test the plan, evaluate test results and modify the plan.

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This article was written by James Heatherly, manager, office systems consulting group, McGladrey and Pullen, Des Moines.

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## Office of Rural Health

**A**FTER A BRIEF PERIOD OF PUBLIC interest during the 1970s rural health care has re-emerged as an important concern for the 1990s.

Problems such as inequitable Medicare payments to rural providers require federal solutions. Other issues threatening health care services are being resolved at the state and community levels.

The Iowa Legislature began to address rural health problems by creating the Iowa Office of Rural Health within the Iowa Department of Public Health. This office was given 2 mandates: investigate alternative licensing categories and outline the impact of Medicare reimbursement.

### *Alternative Licensing*

The first mandate was to investigate an alternative hospital licensure category for Iowa hospital facilities. An 18-member advisory committee was appointed and, assisted by the staff of the Public Policy Center at the University of Iowa, collected and analyzed data relating to this issue. The committee identified several barriers to health care access in rural areas. These barriers included: declining population, increased outmigration for inpatient care and changes in the practice of medicine. At the same time, an aging population is increasing the need for other types of health services. The committee concluded that closure of a local hospital or health facility could lead to the loss of health care professionals and precipitate a devastating loss of accessibility.

The committee began its examination of Iowa's health care system and an alternative health facility category by reviewing activities in other states. The committee also established

criteria by which to measure proposed alternatives.

After several months of study, the committee recommended that no alternative licensure category for hospitals was necessary in Iowa because it would not solve problems of access in rural areas.

Access to health care in Iowa varies from community to community. Communities without any health services may be within a few miles of a community with full services. Given these conditions, the issue becomes one of transportation.

The committee also recommended the development of a technical assistance program through the Office of Rural Health to communities identifying health service delivery problems. Technical assistance could facilitate the community's applications for external resources to support planning initiatives.

### *Impact of Medicare*

The Office of Rural Health's second mandate was to outline the impact of the current Medicare compensation structure on rural providers.

The advisory committee recommended the Office of Rural Health continue to monitor provider reimbursements from Medicare; offer technical assistance to communities that want to make changes in the delivery of health care services; research the impact of health care funding changes on communities; and communicate concerns and information to the Iowa General Assembly and Iowa's Congressional delegation.

### *Technical Assistance*

Besides carrying out legislative mandates, the Office of Rural Health staff provided tech-

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This information on public health matters is furnished and sponsored by the Iowa Department of Public Health.

nical assistance to Iowa's local rural hospitals that applied for funds under the federal Rural Health Care Transition Grants Program. Twenty-eight applications for funding were received from 41 rural hospitals in 1990.

The Office of Rural Health's future plans include developing a stronger community outreach component and continuing cooperation with Iowa State and the University of Iowa in the area of agricultural health and safety.

For copies of reports or activities of the office of Rural Health, call the Iowa Department of Public Health at 515/281-4066.

The Rural Health Advisory Committee members are:

Elaine Boes, Emmetsburg (**rural health practitioner**); Rep. Joel Brown, Lucas (**Iowa House of Representatives**); Gerd Clabaugh, Des Moines (**IDPH**); Sue Mullins, Corwith (**Health Policy Corporation of Iowa**); Dr. David Cranston, Elkader (**rural family physician**).

Ron Davis, Des Moines (**Dept. of Agriculture and Land Stewardship**); Jane Gay, Iowa City (**U of I Institute of Agricultural Medicine and Occupational Health**); Don Herman, Des

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*'Communities without any health services may be within a few miles of a community with full services.'*

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Moines (**Dept. of Human Services**); Rep. Robert Kistler, Fairfield (**Iowa House of Representatives**).

Helen Kopsa, Beaman (**Iowa State Association of Counties**); Pat Kuhlemeier, Clear Lake (**farm organization representative**); Bob Minkler, Des Moines (**Dept. of Inspections/ Appeals**); Senator Wilmer Rensink, Sioux Center (**Iowa Senate**); Marlys Scherlin, Primghar (**National Institute for Rural Health Policy**).

Daryl Siebens, Akron (**farm organization representative**); Dick Spoth, Ames (**ISU Social/Behavioral Research Center for Rural Health**); Senator Al Sturgeon, Sioux City (**Iowa Senate**); Mary Van Diest, Webster City (**agricultural business representative**).



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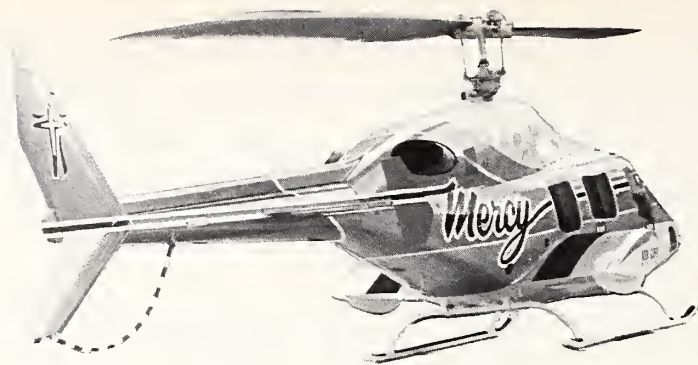
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# About Iowa Physicians

**Dr. Lee Birchansky** and **Dr. David Haney** have joined Eye Surgeons Associates, P.C., Davenport. Dr. Birchansky received the M.D. degree from the University of Miami School of Medicine, Miami, Florida and served a residency at U. of I. Hospitals and Clinics. Dr. Haney received the M.D. degree from the University of Minnesota Medical School, Minneapolis, Minnesota and served a residency at Tulane Medical School, New Orleans, Louisiana. Dr. Haney previously was acting chief of ophthalmology at University of Texas Medical School, Galveston, Texas and chief of ophthalmology at Denver General Hospital, Denver, Colorado. **Dr. Thomas Gorsche** has joined **Drs. Dale Phelps** and **James Mueller** at Surgical and Orthopaedic Associates, P.C., Waterloo. Dr. Gorsche received the M.D. degree at U. of I. College of Medicine and completed a residency at Mayo Clinic, Rochester, Minnesota. Prior to locating in Waterloo, Dr. Gorsche was in private practice in Atlanta, Georgia. **Dr. Dan Warlick** has joined the staff of Fort Dodge Medical Center. Dr. Warlick received the M.D. degree from University of Nebraska College of Medicine, Omaha, Nebraska and completed a residency at Southwestern Michigan Health Center, Kalamazoo, Michigan. Prior to joining Fort Dodge Medical Center, Dr. Warlick was in private practice in Alliance, Nebraska. **Dr. Rebecca Shaw**, Des Moines, has been elected assistant secretary of the American College of Obstetricians and Gynecologists. **Dr. Edward Barczak** has joined Delaware County Memorial Hospital, Manchester, as a radiologist. He received the M.D. degree from the University of Louisville School of Medicine, Louisville, Kentucky. **Dr. Timothy Peterson**, Des Moines, is the recipient of the "Buckle Up America!" award given by the American Coalition for Traffic Safety at the second annual awards ceremony in Washington, DC. Dr. Peterson received the award for his research study which evaluated the ability of safety belts to reduce injury and medical costs. **Dr. Louis Banitt**, Ames, has been se-

lected internist of the year by the Iowa Clinical Society of Internal Medicine. **Dr. Aaron Randolph**, Anamosa, has been honored as a lifetime member of the Anamosa Community Hospital medical staff. Dr. Randolph has practiced in the community for 34 years. **Dr. Gordon Neligh, Jr.**, Council Bluffs, has retired after 40 years as an internist. Dr. Neligh received the M.D. degree from the University of Nebraska College of Medicine, Omaha, Nebraska and served his residency at University Hospital, Ann Arbor, Michigan. **Dr. John Jacobs**, Cedar Rapids, has been elected president of the Linn County Medical Society. Other officers include: Dr. Albert Coates, president-elect; Dr. Thomas McIntosh, vice president and Dr. Mary Anne Nelson, secretary/treasurer.

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## Deaths

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**Dr. Daniel Egbert**, 84, Fort Dodge, died April 28 at his home. Dr. Egbert received the M.D. degree at the University of Nebraska College of Medicine, Omaha, Nebraska and practiced in Fort Dodge for 38 years, retiring in 1983. He was a life member of the Iowa Medical Society and a charter member of the American Society of General Practitioners.

**Dr. Lester Larson**, 87, longtime Decorah physician, died April 30. Dr. Larson received the M.D. degree from University of Minnesota Medical School, Minneapolis, Minnesota. He was a life member of the Iowa Medical Society and a member of the American Academy of Family Practice.

**Dr. James Gilloon**, 65, Peosta, died April 13 at Finley Hospital in Dubuque. Dr. Gilloon received the M.D. degree from Creighton University School of Medicine, Omaha, Nebraska and served a residency at the Mayo Foundation, Rochester, Minnesota. He practiced in the Dubuque area for 30 years and was a member of the American College of Physicians.



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*(Continued next page)*



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A major role of organized medicine is helping physicians cope with an increasingly troublesome practice environment. However, this quote from IMS president Robert Whinery, M.D. confirms neither organized medicine nor individual physicians have lost sight of the most important challenge — improving the health of Iowans.

The concern of Iowa physicians for public health is clearly demonstrated by resolutions approved by the House of Delegates — the IMS governing body — at its annual meeting each April. This annual gathering also includes a Scientific Session during which Iowa physicians explore the latest developments in treatment and technology. This year’s topics included AIDS, cholesterol, organ transplants and other “medical marvels.”

These resolutions approved by physician delegates point to the key role Iowa physicians play in preventing and finding solutions for health problems.

*Substance Abuse* — The IMS will encourage the U. of I. College of Medicine to involve students in drug abuse detection and treatment: the IMS will formulate a statement on the health implications of legalizing illicit drugs.

*Child Violence* — The IMS will make recommendations for greater physician involvement in programs which address child/adolescent violence issues.

*Environment* — The IMS will encourage greater public education about environmental implications of disposable diapers.

*Uninsured/Underinsured* — The IMS pledges to help resolve the health care access

problem faced by the uninsured/underinsured. The IMS will support the efforts of the American Medical Association in developing the Health Access America package.

*Physician Advertising* — The IMS endorses the concept that physicians advertising specialty services and who claim certification include the certifying organization in the advertisement.

*Physician Manpower* — The IMS will consider development of a formalized physician recruitment plan and work with physician training programs to expose medical students to the advantages of practice in Iowa.

*Medicaid* — The IMS, the Iowa Hospital Association and the Iowa Department of Human Services will work toward more equitable Medicaid reimbursement for hospitals. The IMS will encourage all physicians to participate in the Medicaid program to the extent possible given their individual practice circumstances.

These and other issues receiving ongoing attention from the IMS House of Delegates prove the public interest remains the most vital concern for Iowa Physicians.

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July 1990

Iowa Medicine

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# IowaMedicine

August 1990

Journal of the Iowa Medical Society

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# IowaMedicine

Volume 80 Number 8

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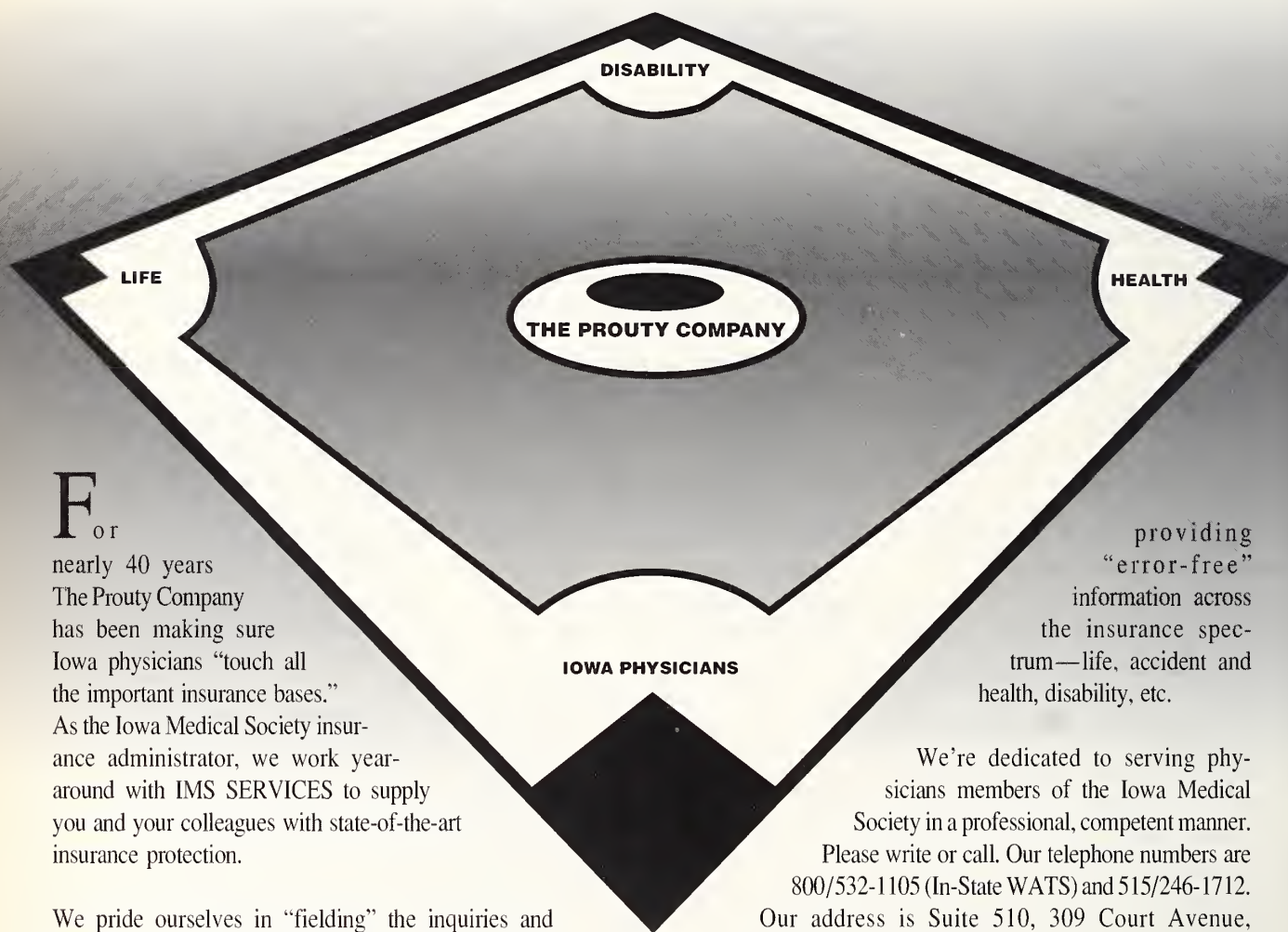
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### Departments

- 379 President's Privilege
- 388 Recent Books
- 394 Clinicopathologic Conference
- 399 The Editor Comments
- 400 CME Notebook
- 402 IFMC Case Notes
- 405 Practice Management
- 406 Iowa Department of Public Health
- 409 New Products and Programs
- 411 About Iowa Physicians
- 412 Classified Advertising
- 414 Advertising Index
- 416 Physicians' Directory
- 418 In the Public Interest

### Special Articles

- 380 **Substance Abuse: A Problem That Won't Go Away**  
*Cocaine is now available to children as young as 12; alcohol remains the number one drug of choice for Iowans. These and other insights emerge in this special roundtable discussion.*  
**Mike Forrest, Rizwan Shah, M.D., Kathy Stone, Janet Zwick**
- 386 **The Price of Addiction**  
*The amount of money spent on treating chemically dependent patients as compared to educating young people is 'penny wise and pound foolish,' says this expert.*  
**F. William Bennett, M.D.**

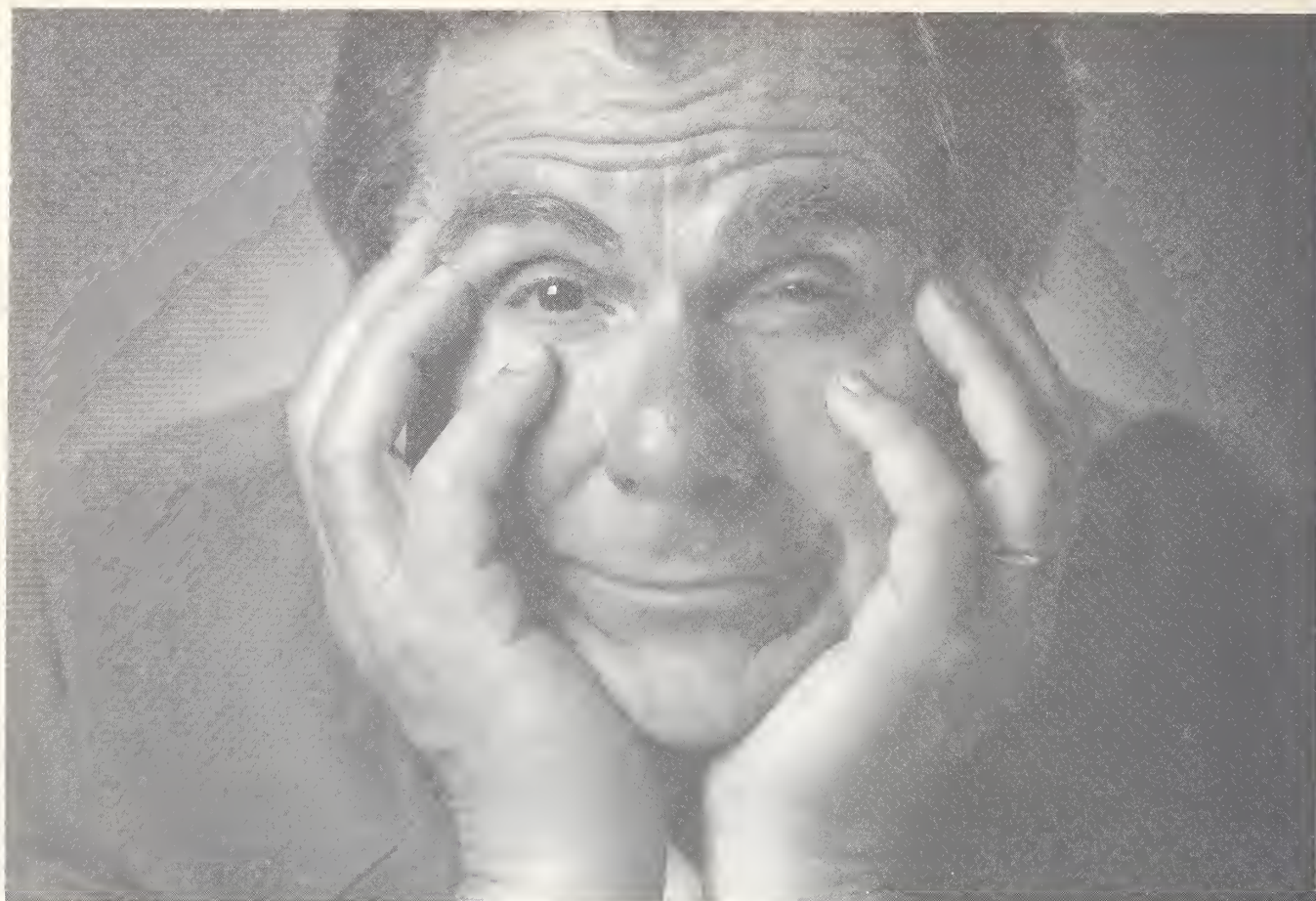
### Scientific Article

- 391 **Babies at Risk: Drug Abuse and Pregnancy**  
*Tragically, some young Iowa women abuse drugs while pregnant. If this situation continues, our entire health care system will be affected.*  
**Don Van Dyke, M.D., Susan Eberly, M.A.**

### About the Cover

The precarious situation of those who abuse alcohol and drugs is illustrated vividly in this photograph by Curtis Stahr, photography director at Des Moines Area Community College in Ankeny. Mr. Stahr is nationally known as an educator and photographer and is listed in *American Artists of Renown*, *Who's Who in the Midwest* and the *International Directory of Distinguished Leadership*.





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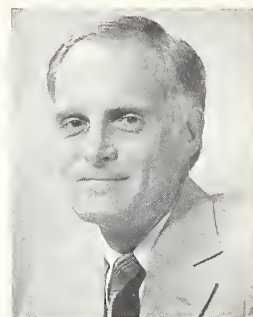
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## President's Privilege

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**Robert Whinery, M.D.**



# What Has the Medical Society Done For Me Lately?

**H**AVE YOU EVER HEARD THIS QUESTION? I certainly have. Usually, the question is a combination of lack of information and frustration. Of course, it's easy to criticize. Solutions to problems are simple until you become involved and have all the facts.

Despite some of the recent "bad press" concerning the AMA and financial misdealings, the AMA is composed of very dedicated people working hard on your behalf. The same is doubly true for the IMS.

The recent AMA House of Delegates reminded me of the intense interest, devotion and sacrifice of those participating. It's a democratic process that serves medicine as a whole. Are we winners every time? Heavens, no; but, despite the way many of you feel, monumental things have been accomplished. Iowa certainly would have mandatory Medicare assignment if it hadn't been for the IMS and Medicare Partners. The onerous Medicare regulations — bad as they are — have been modified, delayed and even abolished by AMA work in Washington.

A huge and irritating problem for all Iowa physicians is PRO sanctions. It is our plan to establish an "oversight" committee in Iowa. This has worked well in New Jersey and Wisconsin. The committee will serve as an intermediary forum for resolution of disputes between PROs and physicians. Real action, real responses.

This month's magazine deals with substance abuse. The AMA and IMS are constantly at work in this area also. At some point, substance abuse will probably affect all our lives. There is much to be done and some results may not be to our liking. Let's each of us get involved. Organized medicine is one way.

A handwritten signature in dark ink that reads "R. Whinery, M.D." The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Robert Whinery, M.D.  
President



## A Roundtable Discussion

# Substance Abuse: A Problem That Won't Go Away

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*A lot of people talk about it, but is anyone really doing anything about it? This month, IOWA MEDICINE assembled a panel of experts to discuss the tragedy of substance abuse and current strategies for dealing with it. As you will see, the number of unanswered questions seems to grow as time goes on.*

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*Editor's Note: Participants in our discussion are: Mike Forrest, drug policy officer for the state of Iowa; Dr. Rizwan Shah, pediatrician and medical director of the Family Ecology Center in Des Moines; Kathy Stone, director of Iowa Methodist Medical Center's Powell III, a private chemical dependency treatment center in Des Moines; and Janet Zwick, director of the Iowa Department of Public Health Substance Abuse Division. The discussion is moderated by Dr. Marion Alberts, retired pediatrician and IOWA MEDICINE scientific editor.*

**DR. MARION ALBERTS:** Mr. Forrest, you've become known as Iowa's "drug czar." Why was your position created by the governor?

**MIKE FORREST:** The legislature and the governor were concerned about substance abuse and coordinating the activities of state government in that area. Thirteen of the 27 state departments are involved in substance abuse programs. It's a complex effort.



Panel participants from left to right: Janet Zwick, Dr. Marion Alberts, Mike Forrest, Dr. Rizwan Shah and Kathy Stone.

**DR. ALBERTS:** How does the Iowa Department of Public Health fit into this picture?

**JANET ZWICK:** We have several mandates under the Code of Iowa. We are to provide quality prevention and treatment services to every Iowan, regardless of their ability to pay. We must also ensure the counselors and prevention specialists are adequately trained. Our department funds approximately 29 community-based treatment services for people who are unable to pay. We also fund approximately 26 comprehensive prevention services. There is some type of prevention service in every county for youngsters and adults. We provide services in schools and communities. If we are really going to make an impact on children we must work with entire communities to make social policy changes.

**DR. ALBERTS: What is your budget?**

JANET ZWICK: The 1990 state fiscal year budget was \$13 million. Fiscal year 1991 will be about \$16 million.

**DR. ALBERTS: Mr. Forrest, you work in coordination with the federal drug czar. What determines state-by-state funding of the war on substance abuse?**

MIKE FORREST: The heavily populated urban areas get the lion's share of federal funding for reasons apart from the challenge of substance abuse. In many neighborhoods their first objective is to eliminate the crime that goes with drugs. Consequently, 70% of federal funding goes for what broadly could be called law enforcement. Iowa is adversely affected as far as funding because of our relatively low population and lower crime rate. We have the same crime they have in Los Angeles — we just don't have it in the same volume.

JANET ZWICK: Another issue is the fact that the federal government focuses on illegal drugs. Alcohol is not an illegal drug, but it is still the major substance abuse problem in America.

MIKE FORREST: I have to protect my colleague Dr. Bennett. The U.S. Congress and the president authorized him only to deal with so-called illegal drugs. However, Dr. Bennett has said he fully understands that alcohol is a problem.

**DR. ALBERTS: Let's get to the local level. How does the Powell program fit into this picture?**

KATHY STONE: Powell III is a private chemical dependency program. We are hospital-based, which means our clients pay their fees out of pocket or through third party payers. Our funding is different from the programs Janet described, but people affiliated with chemical dependency are experiencing the same kind of complicating factors. These people are experiencing problems at home, at work, in their personal lives and with their health because of chemical usage. Alcohol remains the primary drug of choice for the clients we see and the clients served by private treatment centers. We see people who are using cocaine, marijuana, prescription drugs and all sorts of

chemicals but alcohol remains the first drug of choice.

**DR. ALBERTS: Can the courts commit individuals to your program?**

KATHY STONE: Yes, but most people come to us because of some kind of outside pressure. We don't see many people who decide on their own to seek treatment and change their lives. Usually the motivating factor comes from outside the individual.

**DR. ALBERTS: Is the demand for your services increasing?**

KATHY STONE: We believe there are more and more people who are in need of chemical dependency services but we have seen a decrease in the number of admissions. Managed care has come into the pic-

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*'Managed care seems to be emphasizing treatment in the least restrictive environment, whether it is clinically appropriate or not.'*

**Janet Zwick  
Director, IDPH  
Substance Abuse Division**

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ture and plays an increasingly significant role in determining when and where people seek care. We still see as many if not more people who desire services but may not be able to access our services.

JANET ZWICK: Community based programs are seeing an increase in people seeking services. Last October there was a waiting list of 1400 people. Part of that is due to managed care. It's more difficult to access some inpatient facilities and it is becoming more difficult in community based facilities. Managed care seems to be emphasizing treatment in the least restrictive environment, whether it is clinically appropriate or not. So, the outpatient list is growing as well as residential and inpatient.

KATHY STONE: There are 2 issues here. One is the rising cost of health care.

*(Continued next page)*



The other is controversy about appropriate levels of care for chemical dependency. There has been a very strong movement away from inpatient facilities with a fixed length of stay. Ten years ago you could find a chemical dependency program that consisted of 30 days in the hospital, period. Powell III has offered a number of levels of services for some time — inpatient, day treatment and outpatient. We believe there are still people who need hospital care and people who need separation from their environment but don't need to be in a hospital bed. The problem is the criteria for those levels are not well defined so it's unclear who belongs where. I think we should put people in the least intensive level of care necessary to effectively meet their clinical

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*'We see many people who have had medical complications treated over and over but have yet to quit using the chemical.'*

**Kathy Stone**  
**Director, Iowa Methodist**  
**Medical Center, Powell III**

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needs, but there is not always agreement on what is the appropriate level of care. We don't have adequate outcome information. The managed care folks can tell you to the penny how many dollars they save from their involvement in the process but they can't tell us what the outcome is for patients.

**DR. ALBERTS: How many private and public facilities are there in Iowa?**

JANET ZWICK: There are 29 community-based programs and 26 hospital-based programs.

**DR. ALBERTS: When a patient is committed to your facility by a court order, who pays for the treatment?**

KATHY STONE: Generally, a third party payer which could be Medicare, Medicaid or an insurance company. If they have

no payer, they are referred to a community-based program.

**DR. ALBERTS: What is the role of the practicing physician in the substance abuse situation?**

DR. RIZWAN SHAH: I think the most important role of physicians in all specialties is identifying a patient's chemical dependency. We can have an unlimited number of treatment and prevention programs but we cannot expect a chemically dependent person to come forward voluntarily.

I believe the medical profession is lagging behind and must recognize that the practice of medicine in 1990 includes awareness of the increasing number of chemically dependent individuals. Traditionally we have been reluctant to invade a person's private world, which includes habits which may be creating risk factors.

As a pediatrician I am increasingly aware of the fact that children focus on the living skills and health habits of parents. I cannot ignore the fact that a child's environment has an impact on what the child is going to be like.

**DR. ALBERTS: You are active in efforts by the Academy of Pediatrics in substance abuse. Are the Academy of Pediatrics and the Academy of Family Practice emphasizing recognition and treatment of substance abuse in residents' training programs?**

DR. SHAH: Both these groups are recognizing the impact of drug abuse, especially in young adults. The American Academy of Pediatrics has come out strongly in favor of chemical dependency assessment in adolescents and chemical dependency prevention programs in schools. The American Academy of Pediatrics has recommendations for chemical abuse prevention programs at the elementary level, not waiting until the kids are in junior high and high school where they become involved in drug seeking behavior.

The American Academy of Family Physicians has guidelines for how physicians can question patients for underlying chemical dependency problems. There are elective rotations for family practice residency programs in community health, and chemical dependency programs are included. I believe

the American Academy of Pediatrics should include such electives in the pediatrics residency programs.

**DR. ALBERTS:** Do you feel physicians are reluctant or uncomfortable asking their patients about substance abuse?

**DR. SHAH:** Yes, and in most cases there are 2 reasons. One is a lack of training on how to approach a patient when we suspect a chemical dependency problem. The second is most physicians feel there are confidentiality issues involved with the physician/patient relationship and thus are reluctant to ask questions that may impinge upon the patient's right to privacy.

**DR. ALBERTS:** Has the Academy of Pediatrics been able to ascertain how many adolescents are involved in substance abuse?

**DR. SHAH:** I believe last year Iowa was one of the top 4 states for alcohol use. Nearly 51% of adolescents had a serious problem with alcohol abuse. Iowa has a nationwide image as the clean heart of the nation and it is hard to convince anyone we have adolescents with very serious problems. Cocaine is increasingly available to a younger and younger population. It is now very easy in Des Moines and central Iowa for a 12-year-old to get cocaine.

**DR. ALBERTS:** Is there data available on children being raised by adults who abuse cocaine?

**DR. SHAH:** The data is more substantial on effects of alcohol, both genetically and in the family environment. We don't have that kind of data on cocaine use because most of the national programs dealing with chemical dependency are only 6-8 years old. We are just beginning to unravel the impact of cocaine on the family.

Cocaine is more dangerous because it is so addictive and can pervade every aspect of someone's life. It puts children at risk for neglect. Children being raised in an environment where there is a cocaine dependent individual are at 5 times greater risk for physical abuse. Forty percent of children living in an environment where there is a cocaine dependent adult will be sexually abused; 66% of child homicides are related to cocaine. Accidental ingestions of cocaine have hap-

pened throughout the nation. We had 2 last year in Des Moines.

Unfortunately, physicians and the medical profession feel much more comfortable dealing with the acute drug overdose than with long-term substance abuse.

**KATHY STONE:** There's a clear protocol for dealing with the acute symptoms of an overdose. The problem is after the danger has passed, if that person doesn't get involved in some kind of ongoing recovery,

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*'Young Iowans are substantially below the national average of their peers for drug use and abuse and substantially above for alcohol use and abuse.'*

**Mike Forrest**  
**State Drug Policy Officer**

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chances are good he or she will eventually have another acute episode. We see many people who have had medical complications treated over and over but have yet to quit using the chemical.

**DR. ALBERTS:** What is the physician's responsibility regarding a patient he or she suspects has a problem with substance abuse?

**DR. SHAH:** I think physicians need to realize chemical dependency puts the patient at risk for many medical complications and when we do a health risk assessment we cannot forget underlying undiagnosed chemical dependency. That has to become a basic issue, just as we are now very comfortable asking people about smoking. We have to develop the same kind of attitude toward alcohol and other drugs. We have to question people about illicit drugs and abuse of over-the-counter drugs.

Patients don't have to make a commitment to enter treatment but a physician is obligated to speak with the patient if that patient would benefit from chemical dependency assessment. We are not implying that they're addicted to drugs, all we're saying is

*(Continued next page)*



we believe it would be worthwhile to pursue chemical dependency assessment.

**DR. ALBERTS:** How does a doctor recognize someone whose life is being affected by substance abuse?

DR. SHAH: There are many common symptoms. Patients may have wide mood swings, especially on cocaine or hallucinogenic drugs. They may neglect their appearance and may be unable to meet their daily

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*'I believe when we did not have wonder drugs, many people got cured because physicians visited them at home, held their hands and talked to them.'*

**Dr. Rizwan Shah**  
**Director, Family Ecology Center**

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obligations. There may be increased absenteeism at work. There may be indications of neglect in the care of children; not child abuse, but a situation where a parent is not providing the appropriate supervision. When we look at neglect in depth, in 70% of the cases we find there is an underlying chemical dependency problem.

KATHY STONE: One thing that is interesting for doctors to keep in mind is that they may be just as likely to see the family member of the chemically dependent person. Frequently, the spouse or child of the chemically dependent person will feel depressed and may manifest some physical symptoms just from trying to cope with the person's illness.

DR. SHAH: Or, the case of a child who misses school and always says, "My mom was not feeling well." Someone at school should find out why. Very commonly it is a parent who is not feeling well because they overdosed on alcohol. I have seen 4-year-old children caring for 18-month-old siblings.

KATHY STONE: Many people we see are abusing prescription drugs as well as some other chemical. We don't see many who abuse only prescription drugs. They're almost always taking that prescription drug along with something else. They are

drinking or at the very least they're not using that prescription correctly.

JANET ZWICK: I might comment on the PADS program, the Prescription Abuse Data Synthesis project. It's designed to encourage physicians to identify patients who are abusing prescription drugs. The Board of Pharmacy is hoping to implement Mini-DAWN — the Drug Abuse Warning Network — through hospital emergency rooms. This would give statewide identification of what type of substance abuse we're seeing in emergency rooms.

DR. SHAH: I think communication between the physician and the pharmacist helps a great deal. If a patient is addicted to prescription drugs and is doctor shopping, sometimes a physician in the emergency room doesn't know how many prescriptions that patient has. An alert pharmacist can help a physician find out.

I think we sometimes prescribe medications because we don't have time to sit down and talk to people. I believe when we did not have wonder drugs, many people got cured because physicians visited them at home, held their hands and talked to them.

**DR. ALBERTS:** Mr. Forrest, how do you see the substance abuse picture in Iowa?

MIKE FORREST: I believe there are fewer people involved in illicit drugs as opposed to alcohol. We have good evidence of this in Iowa and there's now good evidence at the national level. I don't mean to minimize the illegal drug problem. Drugs are more available than ever; but the real problem for young people in Iowa is alcohol. Young Iowans are substantially below the national average of their peers for drug use and abuse and substantially above for alcohol use and abuse.

The problem is, we don't know much about results of substance abuse education. Research is what we really need. So far, research has been dominated by biomedical people who tell us soon we will be able, in a physician's office, to determine genetic predisposition to the use of drugs and alcohol. There are many unanswered questions and we seem to be getting most of our answers from the people in the trenches and not enough from research. Hopefully the research channels can be expanded to include

prevention and education in addition to biomedical activity. There are many school curriculum programs all over the United States. Everybody has a hot one, but there is no evidence yet to demonstrate any of them work, that is, that they change behavior. Everybody continues to work the 'supply and demand' side following the national lead because that's where the money is. Meanwhile, we're not getting the research answers we need to assure ourselves our strategy is correct in the first place.

**DR. ALBERTS:** What is the attitude of school administrators?

MIKE FORREST: All the superintendents and principals I've talked to are concerned. Some deny there is a drug problem in their town and insist there is only an alcohol problem, but when you talk to the hospital administrators they tell you about the high school kids who have been admitted for treatment.

**DR. ALBERTS:** Would each of you like to give a message to the physicians of Iowa?

DR. SHAH: I would like my colleagues to know that chemical dependency is much more prevalent than any of us realize. I think it is necessary for a physician to consider it when assessing a patient who has multiple health problems or family problems. If we think about it we will learn to diagnose it. It is important for the physicians to know the background of chemical dependency because it is a factor in many medical problems. We will be able to manage those problems better if we have a knowledge of chemical dependency.

KATHY STONE: Dealing with chemical dependency requires cooperation from all people involved. Physicians are in a great position to help get people on the right track. That requires a physician to be knowledgeable and willing to risk raising an issue and addressing it openly. You may risk losing that patient.

**DR. ALBERTS:** In other words, the physician has a professional responsibility and a social responsibility.

JANET ZWICK: I would like to see physicians receive adequate training in recognizing the early symptoms of alcohol and other

drug usage. They should also know where to refer these people for evaluation, assessment and, if necessary, for treatment.

MIKE FORREST: I hope Iowa physicians will support the Mini-DAWN program and encourage the hospital in which they work to participate. Also, there is a whole class of people who use and abuse alcohol who don't need to be hospitalized — people who, with the right kind of reminders, can throw this off themselves. I would like physicians to lend the weight of their profession to the right messages about this in the media.

DR. SHAH: I would like physicians to consider the potential impact on health care costs if we identify chemically dependent individuals and provide early intervention. Many complications that require multiple hospitalization can be prevented. I think you summed it up, Dr. Alberts — we have a professional responsibility and a social responsibility.

## HELPLINE

In conjunction with the Assistance Program for Troubled Physicians (APTP), the Iowa Medical Society Auxiliary has established "Helpline." Call one of the following numbers if you or a loved one needs to speak with an experienced, caring Auxilian about substance abuse. For confidential help please call:

"Susan" 515/576-4797

"Mary" 515/852-3712

"Pat" 515/226-9458

"Betsy" 319/334-4717



**F. William Bennett, M.D.**



# The Price of Addiction

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*The author, medical director of the Sedlacek Treatment Center at Mercy Hospital in Cedar Rapids, discusses the implications of addiction.*

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### **What is the estimated cost to society of drug and alcohol addiction?**

The cost of alcohol and other drug abuse on a national level is an estimated \$278 billion for 1990. In Iowa, for 1989, the cost was estimated to be over \$714 million. These figures include direct and indirect costs but do not reflect the social and personal prices paid.

Approximately 50% of spousal abuse, traffic fatalities, murders and rapes involve alcohol or other drugs. Two-thirds of manslaughter charges, drownings and assaults and one-third of suicides and child abuse cases are also associated with alcohol or other drugs.

Less visible is the price paid by the parents, spouse and children of the substance abuser. There are 28 million children of alcoholics, 25% under 18 years of age. These children endure a great deal of stress. Many develop problems that persist throughout adulthood. Fifteen percent of physician office visits may be alcohol related; however, less than 3% of those problems are diagnosed.

### **Is Iowa's problem with alcohol/drug addiction worsening?**

Apparently each generation must learn for itself. There is a resurgence in use of hallucinogens, particularly LSD. Marijuana is still the most frequently used illicit drug, being taken with cocaine and alcohol which are causing the greatest problems to the health and fabric of our society.

Of the illicit drugs, cocaine remains the greatest problem because of the number of persons who use it, the adverse reactions associated with it and the overall societal cost. Its free-base form, "crack," is less costly and produces a more rapid, longer lasting intoxication. Methamphetamine is seen more often but not its free-base form called "ice," which is relatively inexpensive and produces a very intense long-lasting high.

Alcohol is the first drug of choice in Iowa for both adults and adolescents. It is commonly present with other drugs and is the greatest problem in our society. Among young adults, alcohol consumption is increasing while illicit drug use seems to be diminishing.

### **Where is the line drawn between casual use and addiction?**

Addiction is defined by the development of a withdrawal syndrome when drug intake ceases. There is little argument about the presence of a chemically dependent state when the criteria for addiction is satisfied. However, the diagnosis of chemical dependency is not as readily defined with other patterns of drug abuse. The positive reinforcement resulting from the use of a drug can produce a habituated state with craving as severe as an "addicted" state but without the physiologic features of withdrawal. The use of a mood altering chemical becomes abuse when it causes physical, mental, social or occupational problems. Unfortunately, the response to an individual dose of a substance cannot always be predicted, particularly with drugs such as hallucinogens and stimulants.

Analysis of illicit drugs often produces a variety of adulterants and dosages quite different from the substance the drug user ex-

pected. Taking an illicit drug means consuming an uncertain chemical of uncertain dosage with an unpredictable result. "Casual use" is not risk-free. In addition, the illegality of some drugs places the user at another risk. Even prescribed medications taken in excess or for unnecessary lengths of time place the person at risk of habituation or addiction.

### **What advances are being made in treatment of addiction?**

Research has defined a probable genetic basis for the biogenic amine receptors mediating the effect of mood altering chemicals. This is the basis for specific pharmacologic management of drug intoxication, overdose and withdrawal. It is applied in selecting medication to reduce relapse and drug craving, using agonist and antagonist agents.

Treatment has proven effective in terms of recovery from the illness with a resultant decrease in problems caused by the chemical dependency and a reduction in hospital and physician services. Greater acceptance of chemical dependency as an illness has hastened recovery for many people.

Treatment has improved with better trained staff who use procedures that support recovery and result in lifestyle changes. A recent development is treatment of the mentally ill patient who is chemically dependent. Dual diagnosis treatment enables development of a recovering lifestyle while being maintained on psychotropic medication.

There is now greater individualization in the treatment programs. Patients with the same diagnosis may differ in ways that affect treatment technique and outcome.

### **There is renewed controversy over whether alcoholism should be classified as a disease. What is your opinion?**

During the 200 years since Dr. Benjamin Rush described alcoholism as a disease, there has alternately been emphasis on moral weakness, psychological conflict and metabolic/biochemical uniqueness to explain the illness.

Genetic factors determine susceptibility to various patterns of alcoholism and the associated pathophysiology. One example of the biologic variables in alcoholism is the biogenic amine receptors in the brain which determine the behavioral and neurologic effect of the drug. Susceptibility to cirrhosis of the liver may

also be genetically defined, occurring in about 20% of alcoholics. In addition, the chemical structure of the enzymes involved in the metabolism of alcohol is defined genetically, resulting in variable rates of detoxification.

Alcoholism is a progressive disorder with clearly delineated biomedical consequences. Any hypothesis about the etiology of alcoholism as a behavioral disorder should be consistent with our knowledge of the neurobiology of reinforcement. However, alternatives to the disease model of alcoholism should continue to stand as a challenge to biomedical researchers in search of etiological mechanisms to explain the symptom complex of the alcohol dependence syndrome.

### **How could society handle the problem of drug/alcohol addiction more successfully?**

By society accepting the chemically dependent patient as a person with a primary medical illness, then denial, the greatest barrier to recovery, would be removed more readily. The medical profession, collectively and individually, could be the major force producing such an attitude. However, there is considerably less than unanimity regarding the definition of alcoholism and other drug abuse as an illness as well as any consensus of effective methods of treatment. Traditionally, society has found it difficult to accept an illness where volition is a significant element.

It is important we develop a broad definition of health care cost at a time when there is pressure to contain health expenditures. The amount of money being spent for treatment/rehabilitation of chemically dependent patients is penny-wise and pound-foolish. The cost of chemical dependency to society is excessive, but less than 2% of this cost is devoted to treatment. We need to devote more resources, not fewer, to rehabilitation. There should be greater accountability by the treatment industry in order to demonstrate validity of the methods used.

Nicotine addiction is a greater health problem than alcohol and needs to be addressed with greater intensity. Our approach to nicotine is ambivalent.

Urine drug testing has great limitations as an instrument to manage drug abuse and, with widespread use, becomes an instrument of control rather than protection. It can, however, be effectively used in the recovery process.



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## Recent Books

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Carnes, Patrick, 1989, *Out of the Shadows*, \$9.95, *Contrary to Love*, \$9.95, *A Gentle Path Through the Twelve Steps*, paperback guidebook, \$9.95, (also available as cassette album, \$49.95), CompCare Publishers, Minneapolis, Minnesota. These 3 books represent a tremendous amount of study by one author of a subject that is taboo in some circles. The first book represents a discussion of sexual addiction in a manner that may be understood by the reader. The second book serves as a sequel, providing foundations upon which the addict can be helped. After assessment of the problem, the therapist embarks upon treatment based on the 12 steps toward recovery adopted by Alcoholics Anonymous. The third book serves as a guidebook to the recovery process. Any physician involved in the treatment of sexual addicts will find these books valuable.

Eaton, S. B., M. Shostak and M. Konner, 1989, *Paleolithic Prescription*, Harper & Row, New York, New York, \$8.95. The combined efforts of anthropology and medicine have produced a concept of daily living for good health. Attacking many concepts of life-style in "civilized" cultures, the authors present their concepts of a design for living wherein life-styles of the distant past provide a healthy approach to the present. They discuss ideas which may be controversial yet plea for a analogue of the old with the new for a more healthy life-style.

Burns, Virginia Law, 1989, *William Beaumont: Frontier Doctor*, Enterprise Press, Laingsburg, Michigan, \$17.50. This is a revised edition which answers questions posed in an earlier chronicle of the life of a frontier army physician and the trapper with "a hole in his stomach." Physicians are aware of the monumental studies Beaumont made on gastric physiology through the unique situation presented by a patient who had been shot in the stomach. This is not a scientific treatise. It is a smooth-flowing story of the lives of the 2 men. It is written more in a style acceptable to a layperson, but physicians who enjoy history should enjoy it as well. Oh! The answer to the question not given in the first edition: How Alexis St. Martin sustained the gun shot wound.

Bailey, William and Bryn Manzella, 1989, *Learn Asthma Control in Seven Days*, University of Alabama Hospital, Birmingham, Alabama, \$5.95 plus shipping (\$1.00). (15% discount for bulk orders of 25 copies or more.) This step-by-step daily guide represents the product of research conducted at the University of Alabama Hospitals. Seven chapters include learning about asthma, where to seek help, advice about medications as well as medication options and prevention of asthma. I am sure the process outlined by this program will aid the asthma patient in understanding and accepting of his/her plight. The material is well-written and can be understood by the patient.

Anderson, Lee, 1989, *Iowa Pharmacy, 1880-1905: An Experiment in Professionalism*, University of Iowa Press, Iowa City. The pharmacists of Iowa fought a long battle to be recognized as members of a legitimate profession. The author weaves his historical review of pharmacy with threads of the mutual role with medicine. It is obvious the author did considerable research in preparing this publication.

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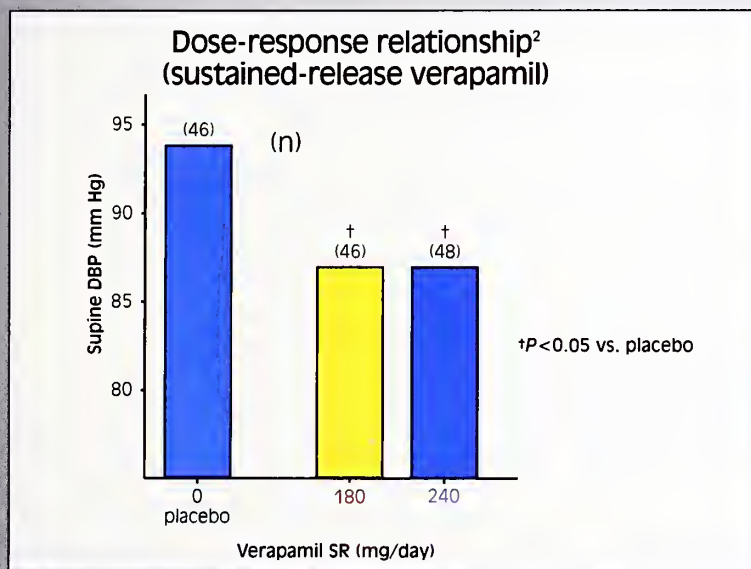


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**Precautions:** Verapamil should be given cautiously to patients with impaired hepatic function (in severe dysfunction use about 30% of the normal dose) or impaired renal function, and patients should be monitored for abnormal prolongation of the PR interval or other signs of overdosage. Verapamil may decrease neuromuscular transmission in patients with Duchenne's muscular dystrophy and may prolong recovery from the neuromuscular blocking agent vecuronium. It may be necessary to decrease verapamil dosage in patients with attenuated neuromuscular transmission. Combined therapy with beta-adrenergic blockers and verapamil may result in additive negative effects on heart rate, atrioventricular conduction and/or cardiac contractility; there have been reports of excessive bradycardia and AV block, including complete heart block. The risks of such combined therapy may outweigh the benefits. The combination should be used only with caution and close monitoring. Decreased metoprolol clearance may occur with combined use. Chronic verapamil treatment can increase serum digoxin levels by 50% to 75% during the first week of therapy, which can result in digitalis toxicity. In patients with hepatic cirrhosis, verapamil may reduce total body clearance and extrarenal clearance of digoxin. The digoxin dose should be reduced when verapamil is given, and the patient carefully monitored. Verapamil will usually have an additive effect in patients receiving blood-pressure-lowering agents. Disopyramide should not be given within 48 hours before or 24 hours after verapamil administration.

Concomitant use of flecainide and verapamil may have additive effects on myocardial contractility, AV conduction, and repolarization. Combined verapamil and quinidine therapy in patients with hypertrophic cardiomyopathy should be avoided, since significant hypotension may result. Concomitant use of lithium and verapamil may result in a lowering of serum lithium levels or increased sensitivity to lithium. Patients receiving both drugs must be monitored carefully. Verapamil may increase carbamazepine concentrations during combined use. Rifampin may reduce verapamil bioavailability. Phenobarbital may increase verapamil clearance. Verapamil may increase serum levels of cyclosporin. Concomitant use of inhalation anesthetics and calcium antagonists needs careful titration to avoid excessive cardiovascular depression. Verapamil may potentiate the activity of neuromuscular blocking agents (curare-like and depolarizing); dosage reduction may be required. Adequate animal carcinogenicity studies have not been performed. One study in rats did not suggest a tumorigenic potential, and verapamil was not mutagenic in the Ames test. Pregnancy Category C. There are no adequate and well-controlled studies in pregnant women. This drug should be used during pregnancy, labor, and delivery only if clearly needed. Verapamil is excreted in breast milk; therefore, nursing should be discontinued during verapamil use.

**Adverse Reactions:** Constipation (7.3%), dizziness (3.3%), nausea (2.7%), hypotension (2.5%), headache (2.2%), edema (1.9%), CHF, pulmonary edema (1.8%), fatigue (1.7%), dyspnea (1.4%), bradycardia: HR < 50/min (1.4%), AV block: total 1°, 2°, 3° (1.2%), 2° and 3° (0.8%), rash (1.2%), flushing (0.6%), elevated liver enzymes. The following reactions, reported in 1.0% or less of patients, occurred under conditions where a causal relationship is uncertain: angina pectoris, atrioventricular dissociation, chest pain, claudication, myocardial infarction, palpitations, purpura (vasculitis), syncope, diarrhea, dry mouth, gastrointestinal distress, gingival hyperplasia, ecchymosis or bruising, cerebrovascular accident, confusion, equilibrium disorders, insomnia, muscle cramps, paresthesia, psychotic symptoms, shakiness, somnolence, arthralgia and rash, exanthema, hair loss, hyperkeratosis, macules, sweating, urticaria, Stevens-Johnson syndrome, erythema multiforme, blurred vision, gynecomastia, increased urination, spotty menstruation, impotence.

### References:

- 1988 Joint National Committee: The 1988 report of the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure. *Arch Intern Med* 1988;148:1023-1038.
- Data on file, G.D. Searle & Co.

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# Babies at Risk: Drug Abuse and Pregnancy

DON VAN DYKE, M.D.

SUSAN EBERLY, M.A.

Iowa City, Iowa

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*The authors discuss the growing evidence that drug and alcohol abuse during pregnancy has adverse effects on developing fetuses. The need for further research is emphasized.*

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**I**T WOULD BE WONDERFUL IF young women in Iowa did not abuse drugs while pregnant, but some do. Following are excerpts from 2 case histories recorded in 1989 in the newborn nursery at University of Iowa Hospitals and Clinics.

## Case History 1

An 18-year-old young woman spontaneously delivered a 3280-gram female infant at 41 weeks gestation with Apgars of 8 and 9. Measurements of the female infant showed her to be AGA for 40 weeks. The mother indicated

she used alcohol every other day during the first 6 weeks of pregnancy, smoked marijuana daily and took crack intravenously at least 4 times during the same time period.

The mother discontinued her use of marijuana, cocaine and alcohol when she learned she was pregnant, at approximately 4 to 6 weeks of gestation. She continued, however, to smoke a pack of cigarettes per day during the pregnancy.

## Case History 2

A 16-year-old woman reported daily use of marijuana, alcohol (half a fifth of whiskey per day) and cocaine (twice per day) through the first 6 months of pregnancy. She reported she discontinued her use of cocaine, marijuana and alcohol during the last trimester of pregnancy, but continued to smoke 2 to 3 packs of cigarettes per day.

Ultrasound examination of the fetus at 31 weeks showed marked intrauterine growth retardation. A referral was made to high risk obstetrics, where cordocentesis showed 46XX, normal female karyotype. At 40 weeks the mother delivered a 2880-gram female following spontaneous rupture of membranes and a normal vaginal delivery. Apgars were 7 and 9.

Physical examination showed an AGA female infant who was severely microcephalic with a head circumference of 23.5 cm, 3 standard deviations below the mean for age. Computerized tomography (CT) scan of the head showed severe microcephaly with cortical

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The authors are associated with the Division of Developmental Disabilities, Department of Pediatrics, University of Iowa Hospitals and Clinics.

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atrophy. Results of cardiac examination were normal and there was no evidence of nail hypoplasia. Hearing assessment noted a probable mild to moderate hearing loss.

Abuse of illegal drugs has a long, if erratic, history in the United States. The most recent cycle of escalation began in the 1960s and has continued, emerging today as a major health concern.<sup>1</sup> The most significant single factor in the 1980s has been the increase in cocaine use. The National Institute of Drug Abuse estimates 3 million Americans use cocaine regularly and approximately 15% of the U.S. population has tried cocaine at least once.<sup>2</sup> It is estimated that nearly 40% of Americans who use cocaine are between the ages of 15-30 years.<sup>2, 3</sup>

Cocaine is only part of the problem. A 1985 study estimates approximately 31% of all American women in their late teens or early 20s have at some time used marijuana.<sup>4</sup> Surveys of high school students indicate that nationwide, between 20-40% of such individuals use alcohol or other drugs excessively.<sup>5</sup>

The problem of drug abuse is further complicated by the fact many drug users tend to use a variety of drugs. Alcohol in particular is used in combination with other drugs.<sup>6</sup> A growing body of pharmacological data suggests that alcohol and other drugs have significant interactions and that mixed-drug abuse may increase the adverse effects of certain drugs, such as cocaine, on the developing fetus.

Approximately 56 million American women are between 15 and 44 years of age, the age range during which they are most likely to bear children. Extrapolating from the statistics of Zuckerman and others, we can estimate that approximately 15 million of these potentially pregnant women have used marijuana and 10 million have used cocaine.<sup>7</sup> This raises important questions about the prevalence of adverse effects of drug abuse during pregnancy on fetal growth and development.

### ***Cocaine and Impaired Fetal Growth***

In a 1989 survey of 18 hospitals by the Select Committee on Children, Youth and Families, 15 hospitals reported the birth of children exposed to drugs had increased by a factor of 4 since 1985; 9 hospitals suggested

the number of drug-exposed infants is under-reported.<sup>8</sup> This survey reported that "crack" cocaine had become the drug of choice, a conclusion that is supported by several other studies.<sup>9-12</sup>

What implications does this have for the developing fetus of the pregnant woman who is abusing drugs? Studies suggest CNS-active drugs such as alcohol, cocaine, PCP and marijuana may cause a variety of CNS dysfunctions. A large body of research now documents the relationship between fetal alcohol exposure and the development of hyperactivity and learning problems in school-age children; current research is beginning to cast light upon the negative effects of cocaine, PCP and multidrug use upon the fetus.<sup>7, 13-17</sup>

Cocaine, the "drug of choice" for many young women who abuse illegal drugs, has been linked to impaired fetal growth.<sup>14, 15, 18, 19</sup> Chasnoff et al. report increased rates of intra-uterine growth retardation, preterm delivery and low birth weight.<sup>14</sup> Children born to mothers who have abused cocaine during their pregnancies may show significant impairment of motor, orientation and regulatory behaviors on neonatal behavior assessment scales as well as signs of CNS irritability such as increased muscle tone, tremors and irritability during the first week of life.<sup>14, 20</sup>

### ***Long-term Outlook For Drug-Exposed Babies***

A study of fetal cocaine exposure by Bingol et al. found an increased incidence of still-birth, *abruptio placentae* and fetal malformations.<sup>18</sup> Abuse during pregnancy of a combination of drugs such as cocaine and narcotics or amphetamines may result in pregnancies with the least positive outcomes. These infants will have the most serious growth retardation, physical abnormalities and developmental problems.<sup>15, 21</sup>

Investigators are also studying the effects of PCP upon fetal development.<sup>17</sup> Infants exposed prenatally to PCP may display a variety of neurobehavioral symptoms — problems with fine motor coordination, adaptive behavior and language development, more lability and less consolability.<sup>17</sup> Likewise, use of marijuana during pregnancy is associated with impaired fetal growth, greater risk of low birth weight and physical malformations.<sup>22</sup>

The long-term outcomes for many of these children is also a matter for concern. Some drug-exposed newborns show atypical electroencephalograms (EEG) at birth and continue to have EEG abnormalities on follow-up at 8 days, 19 days, 90 days and, in a few, at 12 months.<sup>20</sup> A study by Dixon et al. in 1987 showed abnormal visually evoked responses (VERs) and EEGs in 11 of 12 infants with fetal cocaine exposure and VER abnormalities were still detected in some infants at 4 to 6 months of life.<sup>23</sup>

Needless to say, these at-risk children require careful, ongoing follow-up. Abnormal neurologic signs in the neonatal period that extend through the first year of life may portend behavior, learning and attention deficit problems in older children.<sup>24, 25</sup>

The problem is further complicated by the fact there is a strong link between drug use in adults and HIV infection in young children. A common avenue of maternal infection is intravenous drug use or sexual contact with an intravenous drug user. Of children under 13 years of age with AIDS, about 80% have at least one parent with AIDS or symptomatic HIV infection.<sup>26</sup>

## Conclusions

The past 5 years have witnessed an exponential increase in the use of cocaine in combination with other CNS active drugs among young women of childbearing age in the United States. Recently published studies of the effects of drug use upon prenatal development give cause for grave concern. Further studies of children with fetal drug exposure need to be done to document the long-term significance of such drug exposure; all health care providers must be kept informed as this body of knowledge is augmented.

Present and continued substance abuse in the pregnant female could have a significant impact not only on future generations, but on health care systems. Disparity between services available and services requested could become even more commonplace. The potential to overload every system involved with the care of such children is a paramount concern.

## References

References noted in this article are available either from the authors or the editors of *IOWA MEDICINE*.

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## The Case of the Pained Hypertensive

**A** 22-YEAR-OLD WHITE MAN WAS REFERRED to U. of I. Hospital with hypertension and chest pain.

### *Clinical Findings*

**Brenda Phillips, M.D., Internal Medicine:** He was first noted to have elevated blood pressure (BP) at age 15. More recently, at a pre-employment physical, BP was 204/118 mm Hg. He had gained 50 pounds in the preceding 6 months. Locally he was noted to have left ventricular hypertrophy (LVH) on electrocardiogram (ECG) and cardiomegaly on chest x-ray. An intravenous pyelogram (IVP) was normal. Hypertension persisted despite the use of verapamil SR 240 mg BID.

In the hypertension clinic, the patient gave the history of sharp exertional chest pain. He denied rest pain, syncope or congestive heart failure symptoms. The patient was married and worked in a meat packing plant. He had smoked cigarettes for 4 years but did not use alcohol. He had no other known medical problems. Family history was significant for hypertension and coronary artery disease.

Physical examination showed an obese man (113 kg). Blood pressure in the right arm (large cuff) was 164/68 mm Hg with a heart rate (HR) of 60 and no orthostatic change. Blood pressure in the left arm was 168/78 mm Hg. Systolic pressure in the right leg measured with a thigh cuff was 170 mm Hg. The fundi were normal. The chest was clear. Cardiac examination revealed a harsh systolic murmur at the aortic area with radiation to the neck. The murmur decreased with Valsalva and questionably

decreased with squatting. There were no abdominal bruits or masses and no peripheral edema.

Laboratory studies included a white blood count of 8300/ul, Hg 18.1 g/dl, Hct 55% and platelet count 194,000/ul. Sedimentation rate was 5 mm/hr. Sodium was 141 mEq/L, potassium 4.1 mEq/L, chloride 101 mEq/L, bicarbonate 23 mEq/L and creatinine 1.2 mg/dl. Trace protein was found in the urine. A urinary collection showed catecholamines 79 mcg/gcr, metanephrines 149 mcg/gcr and VMA 0 mg/tv (all normal). The patient was instructed on a low salt, weight reduction diet. Cardiology was consulted.

In cardiology clinic, BP was 190/98 mm Hg with a HR of 52. Cardiac exam revealed a II/VI systolic murmur radiating into the neck. There was no increase with Valsalva. The carotid pulse contour was normal and there was no S3 or S4. Resting ECG showed sinus rhythm with poor R wave progression and LVH by voltage. On a Bruce protocol exercise test, the patient went 3 minutes into stage II, did not have chest pain, but was stopped because of a positive test (2.5 mm flat ST depression in V6). Echocardiogram revealed "trivial aortic stenosis," normal left ventricular function, and no evidence of idiopathic hypertrophic subaortic stenosis. The patient was not felt to have ischemic heart disease.

Over the ensuing 6 months, the patient was seen several times. While on a regimen of hydrochlorothiazide and atenolol, home BP ranged 140-190/70-80 mm Hg. He remained unemployed because of continuing chest pain. Physical exam was unchanged. Lipid profile showed total cholesterol to be 168 mg/dl, HDL 31 mg/dl, LDL 98 mg/dl and triglycerides 232

This material is furnished by the Department of Internal Medicine, University of Iowa College of Medicine.

mg/dl. A renal arteriogram was planned. The cardiologist recommended concomitant coronary angiography to rule out an anomalous coronary system. The patient was admitted for these studies. A physical exam finding suggested the diagnosis and a confirmatory test was obtained.

## Clinical Discussion

### Annette Fitz, M.D., Internal Medicine:

The first question is the extent to which causes of secondary hypertension should be explored in a young individual with recent weight gain and a positive family history of hypertension. Between the ages of 20 and 56, essential hypertension is far and away the most common etiology of hypertension, particularly in those with positive family histories. Other diagnoses are more common in hypertensive children and in 5% of adults. These include renal parenchymal disease, renovascular disease, adrenal disease and coarctation of the aorta. As indicated in Table 1, this patient has many features which suggest a secondary cause of hypertension. His hypertension is unusual in the following: 1) the age of onset, 2) the severity of hypertension and 3) the degree of end organ disease (LVH and cardiomegaly suggest substantial duration of hypertension).

How then should we evaluate this young man? In reviewing the laboratory evaluation to date, there is no evidence of significant renal parenchymal disease since both serum creatinine and the urinalysis are normal. The screening IVP was not remarkable. However, a normal IVP does not rule out renovascular disease, particularly in the young patient. Although long used as the best available screening test, the IVP is neither optimally sensitive nor optimally specific for the presence of renovascular hypertension. Presently we are recommending a post captopril DMSA and DTPA renal scan as a better, although not perfect, screening test. The most common cause of renovascular hypertension in his age group is fibromuscular dysplasia. Although the most common form of fibromuscular disease occurs in women ages 20-50, other forms do occur in both males and pediatric patients.

Although pheochromocytoma may present as exertional or non-exertional chest pain, palpitations and significant hypertension, the normal urine catecholamines are adequate to

TABLE 1

#### CLINICAL FEATURES INDICATING FURTHER WORKUP FOR SECONDARY HYPERTENSION

Age of onset < 20 or > 50 years
BP > 180/110 mm Hg
Organ damage:
cardiomegaly or LVH
elevated serum creatinine
hypertensive grade II—IV fundi
Specific features:
abdominal or renal bruit
unprovoked hypokalemia
variable BP, tachycardia, sweating, tremor, headaches
history of renal disease
Poor response to treatment

rule this out. Individually each of the urinary screening tests is 90-95% accurate. When all 3 are normal, the likelihood that a pheochromocytoma is present is less than 1%.

Although the normal electrolytes reduce the likelihood that the patient has significant mineralocorticoid or glucocorticoid hypertension, it must be remembered that occasionally patients with primary aldosteronism or high cortisol may present with normal serum potassium. Other clinical features of hyperaldosteronism, such as nocturia, muscle cramps and weakness are absent, making this a less likely diagnosis.

The possibility of coarctation of the aorta in a young man who presents with left ventricular hypertrophy and cardiomegaly at a relatively young age needs to be kept in mind. The lack of difference between the arm and leg blood pressure tends to decrease the likelihood of this diagnosis, but does not eliminate it since occasionally arm and leg pressures will be roughly equal and the difference may not be apparent until after exercise testing. Unfortunately in this case, arm and leg pressures were not taken as a part of the Bruce protocol and information on pulse contour and the relationship of femoral to brachial pulses is lacking.

The chest x-ray demonstrated cardiomegaly (cardiothoracic ratio 0.6) and a prominent left ventricle. In addition, at least to my view, there was a suggestion of rib notching in several of the ribs of the left chest and at least one of the ribs of the right chest. Such notching suggests coarctation of the aorta.

(Continued next page)



Although many patients with coarctation are discovered in infancy and childhood, it is not uncommon for the lesion to remain undiagnosed until the individual reaches the teens and early 20s. Of interest, only 40% of children with coarctation present with hypertension. The remaining 60% either require treatment early in infancy for congestive heart failure and are thus diagnosed before hypertension develops or they are discovered in early adulthood. Among congenital cardiac anomalies it generally ranks 3rd to 6th in frequency and there is a male to female preponderance of 2 to 1.

In this patient the occurrence of hypertension, initially diagnosed in the teens, with rib notching, cardiomegaly, exertional chest pain, LVH with positive treadmill and a cardiac murmur all combine to make aortic coarctation the likely etiology of his hypertension. I suspect the diagnostic test was an aortogram.

### ***Diagnostic Procedure***

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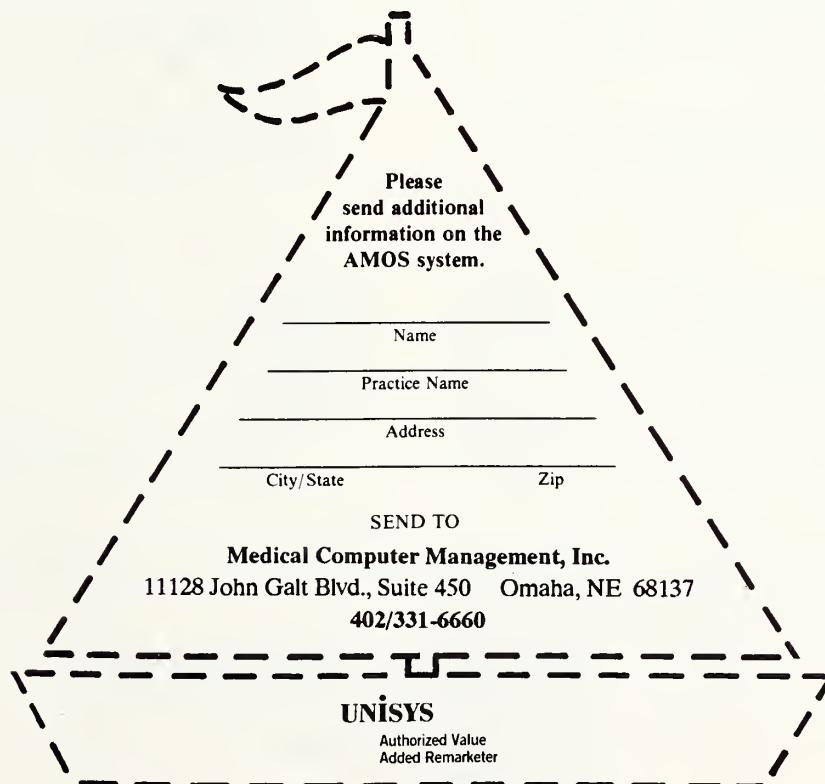
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## The Editor Comments

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Marion E. Alberts, M.D.



# Friendship

*Friendship is nothing else than an accord in all things, human and divine, conjoined with mutual goodwill and affection. . . . Friendship adds a brighter radiance to prosperity and lightens the burden of adversity by dividing and sharing it.*

—Cicero (106-43 BC)  
*De Amicitia*, chapter 6

**F**RIENDSHIPS ARE TAKEN FOR GRANTED too often. Friendships need development and constant nurturing. Like a garden there must be cultivation and sowing. In the process there is inherent risk for the seeds first must germinate to become the fragile seedlings which may produce beautiful blossoms. So it is to cultivate and produce friendships. One must cultivate a wholesome environment and sow the seeds by reaching out to others in the search for friends. Like a garden, friendships must be tended carefully lest they go to seed and become engulfed by undesirable invaders.

Physicians tend to be cliquish, especially in some communities. During our intensive training years we work closely with our classmates to learn the professional skills of medicine. Too often there is little free time; social life is fleeting. Usually non-professional close acquaintances are few. Students with a spouse employed outside the medical world may foster friendships from other walks of life. As time permits, their lives are enriched.

After entering the active practice of medicine our daily lives are dominated by contact with other physicians. We tend to be cohesive in our relationships with each other and with our hospital affiliations.

I recall the observation made to me several years ago by a friend, a lady whose husband was not a physician, that physicians at a social gathering tended to gravitate to each other and eventually would be talking "medicalese." I suppose the same is true of lawyers, teachers and engineers. Professionals in small towns may not be so afflicted with this tendency.

I admit my professional years were dominated by friendships with other physicians. That is not to say we had no other friends, but there was a definite tendency to be with colleagues. We cherish our friendships with those colleagues and their families but since I have retired and am no longer so intimate with the medical world our horizons have broadened.

Many new friendships have been fostered by new activities. For example, I do considerable volunteer gardening at Living History Farms. Instead of a white coat and well-scrubbed hands it is blue jeans and rich soil under my fingernails.

This discussion has come full circle — friendships and gardening. Cicero also stated that "If you have a garden and a library you have everything you need." Well, I have the garden (beautiful flowers and good friendships) and my library consists of books on medicine and gardening.

Cultivate your garden of friendships for without them life is shallow. Days devoid of friends are difficult and unsettling. Sow the seeds, cultivate the garden, tend it lovingly and reap an abundant harvest of success and happiness. Truly then you will have a garden of friendships which will provide rich experiences and open doors to a life fulfilled.—M.E.A.



Richard M. Caplan, M.D.



# Medicus, Physicus, Doctore

**P**ERHAPS MY INTEREST IN WORDS, meaning and communication exceeds the average. But it causes me to encounter etymological tidbits here and there that edify and please. Some folks take delight in watching birds, television or baseball teams. I don't, and thereby miss, I'm sure, some splendid experiences. Words, then, serve as a rationalization and consolation.

Those at issue just now are *medicus*, *physicus* and *doctore*. The first derives from Latin, and pertains to "healing" — a medic, medicine. The next is from the Greek word for "nature" and pertains to what is natural, and ultimately to the study of nature. ("Natural science" is thus the knowing about nature.) The original word also meant a bringing forth, which explains our presently somewhat archaic meaning of "a physic" as a laxative, which must be carefully distinguished from "a physicist" (one who studies and knows the world of nature). Another historical distinction from this root is "physician," as contrasted to "surgeon."

*Doctore* derives from Latin roots meaning to teach — quite a different matter, sometimes, from healing or studying nature. Our words "doctrine" and "indoctrinate" are perhaps relatives with less-than-pleasing connotations.

Most of us probably use the 3 derivatives — medic, physician, doctor — as synonyms, although language by nature admits no truly congruent synonyms. Just as the 3 notions can be distinguished linguistically, we can think of at least 3 corresponding

roles in the "typical" physician — "healer," "scientist" and "teacher." My ideal amalgamates these entities. But the world isn't ideal: modern life, complete with its enormous additions to knowledge and consequent specialization, has greatly separated these functions. Medical education in this century has certainly emphasized the "science" component. The "caring" for patients and the "patient education" elements of our work are taught in various ways — some of them effective, fortunately. They've not enjoyed, however, the time, attention and money now focused on either advancing medical science or applying technology to combat disease.

To better understand nature, including mankind and its ailments, is indeed science. Some therefore refer to medicine as a science, but surely the *practice of medicine* is not; it is a *healing art based on scientific principles and knowledge*. The skills emphasized by those who are effective practitioners of medicine include "caring" (if being called a "healer" makes you feel uncomfortable) and "teaching" — far beyond what many professional educators acknowledge in words or actions. Lest my academic colleagues rise to smite me, I quickly add that many of them are superb examples of the ideal fusion I referred to. As the metaphoric pendulum swings more toward caring and teaching patients, which it gives evidence of doing, we must not abandon or sneer at what we are now pleased to call science. Rather, the products of our educational system, overwhelmingly practitioners, must better embody the fusion implied collectively by those ancient words: *medicus*, *physicus* and *doctore*.

---

Dr. Caplan is Associate Dean for Continuing Medical Education at the University of Iowa College of Medicine.

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# Private Review

**M**OST PRIVATE INSURANCE COMPANIES reimburse hospitals on a per diem basis, unlike Medicare and Medicaid, which follow a prospective payment system based on DRGs. Consequently, private review companies such as the IFMC are employed to verify not only the appropriateness of an admission or procedure, but also the appropriateness of each additional day in the hospital. Most private review is performed on a concurrent basis.

In contrast, a large percentage of Medicare and Medicaid cases are reviewed retrospectively. The focus is not on the number of days spent in the hospital, but on the appropriateness of the admission and/or procedures and the discharge diagnosis upon which the DRG is based. Under the prospective payment system, a facility has no incentive to retain a patient longer than medically necessary. Therefore, continued stay review is rarely needed.

As discussed in the following case study, underlying differences in payment methods may create subtle distinctions between private and government review programs. However, these distinctions stop short of affecting the patient's care. It is important to note that the IFMC conducts all review based on medical necessity. If an additional day in the hospital is medically necessary, it will not be denied, regardless of the pay source.

### Case Study

A 39-year-old female is admitted to acute care with probable pneumonia. Her WBC is 16.7, pCO<sub>2</sub> is 30.4 and pO<sub>2</sub> is 56.2. Her temperature is 102.4. Other symptoms include in-

spiratory and expiratory wheezing and night sweats.

The attending physician diagnoses acute exacerbation of asthma and strep pneumonia and orders a continuous IV of aminophylline and intermittent Timentin and Solu Medrol.

On her second day of hospitalization, the IV aminophylline is discontinued and oral Theodur prescribed. On day 3, the patient's

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*'It is important to note that the IFMC conducts all review based on medical necessity.'*

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temperature is 98.6. Oral prednisone and Amoril are ordered and Timentin is discontinued. In addition, she is experiencing less wheezing and is able to increase activity.

Is continued stay in acute care warranted under a private review program?

### Comments

No. Because the patient's condition had stabilized and she required only oral medication, she could be appropriately discharged home for outpatient follow-up.

If this had been a Medicare or Medicaid patient, continued stay would rarely be an issue. The IFMC does not evaluate the number of days spent in the hospital unless the length of stay or costs exceed the outlier threshold. Therefore, under Medicare or Medicaid, the hospital and physician theoretically could choose to keep the patient an additional day. In reality, however, once a patient is stabilized, he or she will be discharged as soon as possible.

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This column is provided by the Iowa Foundation for Medical Care (IFMC) to discuss review requirements and procedures. This month's author is Jeffrey Stahl, M.D., chairman of the IFMC's private review committee.



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### References

1. USP DI Update, September/October 1988, p. 120.
2. Br J Clin Pharmacol 1985;20:710-713.
3. Data on file, Lilly Research Laboratories.
4. Scand J Gastroenterol 1987;22(suppl 136):61-70.
5. Am J Gastroenterol 1989;84:769-774.

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**Contraindication:** Known hypersensitivity to the drug. Use with caution in patients with hypersensitivity to other H<sub>2</sub>-receptor antagonists.

**Precautions:** *General*—1. Symptomatic response to nizatidine therapy does not preclude the presence of gastric malignancy.

2. Dosage should be reduced in patients with moderate to severe renal insufficiency.

3. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

**Laboratory Tests**—False-positive tests for urobilinogen with Multistix<sup>®</sup> may occur during therapy.

**Drug Interactions**—No interactions have been observed with theophylline, chlorazepoxide, lorazepam, lidocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450 enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increased serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

**Carcinogenesis, Mutagenesis, Impairment of Fertility**—A two-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a two-year study in mice, there was no evidence of a carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given

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an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a two-generation, perinatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

**Pregnancy—Teratogenic Effects—Pregnancy Category C**—Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch 8e12 rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect; but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in one fetus, and at 50 mg/kg, it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in one fetus. There are, however, no adequate and well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

**Nursing Mothers**—Studies in lactating women have shown that 0.1% of an oral dose is secreted in human milk in proportion to plasma concentrations. Because of growth depression in pups reared by treated lactating rats, a decision should be made whether to discontinue nursing or the drug, taking into account the importance of the drug to the mother.

**Pediatric Use**—Safety and effectiveness in children have not been established.

**Use in Elderly Patients**—Healing rates in elderly patients were similar to those in younger age groups as were the rates of adverse events and laboratory test abnormalities. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

**Adverse Reactions:** Clinical trials of varying durations included almost 5,000 patients. Among the more common adverse events in domestic placebo-controlled trials of over 1,900 nizatidine patients and over 1,300 on placebo, sweating (1% vs 0.2%), urticaria (0.5% vs <0.01%), and somnolence (2.4% vs 1.3%) were significantly more common with nizatidine. It was not possible to determine whether a variety of less common events was due to the drug.

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**Hepatic**—Hepatocellular injury (elevated liver enzyme tests or alkaline phosphatase) possibly or probably related to nizatidine occurred in some patients. In some cases, there was marked elevation (>500 IU/L) in SGOT or SGPT and, in a single instance, SGPT was >2,000 IU/L. The incidence of elevated liver enzymes overall and elevations of up to three times the upper limit of normal, however, did not significantly differ from that in placebo patients. Hepatitis and jaundice have been reported. All abnormalities were reversible after discontinuation of Axid.

**Cardiovascular**—In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in two individuals administered Axid and in three untreated subjects.

**CNS**—Rare cases of reversible mental confusion have been reported.

**Endocrine**—Clinical pharmacology studies and controlled clinical trials showed no evidence of antiandrogenic activity due to nizatidine. Impotence and decreased libido were reported with equal frequency by patients on nizatidine and those on placebo. Gynecomastia has been reported rarely.

**Hematologic**—Fatal thrombocytopenia was reported in a patient treated with nizatidine and another H<sub>2</sub>-receptor antagonist. This patient had previously experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

**Integumental**—Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

**Hypersensitivity**—As with other H<sub>2</sub>-receptor antagonists, rare cases of anaphylaxis following nizatidine administration have been reported. Because cross-sensitivity among this class has been observed, H<sub>2</sub>-receptor antagonists should not be administered to those with a history of hypersensitivity to these agents. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

**Other**—Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine have been reported.

**Overdosage:** Overdoses of Axid have been reported rarely. If overdose occurs, activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis for four to six hours increased plasma clearance by approximately 84%.

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# Automation and Improved Practice Management

**A**S YOUR PRACTICE GROWS, the number of business transactions controlled by your office staff increases. While manual systems often work well for the basics in a small practice, a growing practice may benefit from automation.

### *Benefits*

Benefits of implementing or expanding a computer system include rapid processing of paperwork, elimination of manual tasks, improvement of collection procedures, reduction in costs associated with outside services and rapid access to patient data.

### *Selection*

Many software vendors have developed the applications software necessary for your practice. This means your office does not need to hire a computer programmer to automate the practice. Following are some basic ideas to consider in selecting a computer system.

Before buying any computer hardware (printers, terminals, etc), it is important to find the software package and vendor that best meet your information processing requirements. This "needs analysis" is the process of identifying data reporting, data access and data processing requirements of your practice. All areas of the practice should be evaluated for potential automation — patient billing, insurance claim processing, patient registration, appointment scheduling, accounting, etc. All members of office management should agree upon the appropriate level of automation.

The next step in selecting a system is to locate qualified vendors who provide complete solutions for the medical office. Although there are numerous vendors in the market place, the primary goal is to identify vendors who satisfy your processing requirements and will be in business 5 to 10 years from now. Three or 4 "finalists" should be selected for additional evaluation of their systems.

Attending a demonstration of the software is the best way to evaluate the systems. During demonstrations, the differences between vendors become apparent and office personnel begin to envision how the software will be integrated into their daily business activities.

Other options for selecting systems include hiring a highly qualified computer consultant or asking the vendor to provide point-by-point responses to the needs of the practice. The request for proposal is typically used for larger practices or complex systems when significant dollars will be spent.

Your decision-making process will also include selecting the best hardware solution. Most software vendors identify the preferred hardware configuration for their product.

The microcomputer or personal computer is definitely an option for most practices. Improvements in technology allow multiple microcomputers to be "tied together" in order to share access to patient data and peripheral hardware such as printers. The planning and preparation phase for a new system is imperative. Many of the frustrations inherent in implementing new systems can be eliminated through proper planning and applying some of the basic approaches outlined above.

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This article was written by Gordon Opland, a management consultant with McGladrey & Pullen, Des Moines, Iowa.



## Governor's Alliance on Substance Abuse

**T**HE GOVERNOR'S ALLIANCE ON SUBSTANCE ABUSE (GASA), formerly a program within the Iowa Department of Public Health, has merged with the Office of the Drug Enforcement and Abuse Prevention coordinator. The newly created GASA will continue to administer the federal Drug Control and System Improvement Grant Program, and will include the activities of the state drug coordinator and several other programs.

The drug coordinator monitors all state government substance abuse programs. The legislation which created the position of the drug coordinator also created 2 councils: the Narcotics Enforcement Advisory Council and the Drug Abuse Prevention and Education Advisory Council. The drug coordinator is the chair of both councils.

Eighteen individual state departments administer some type of substance abuse programming. The departments of Corrections, Education, Human Services, Public Health and Public Safety administer the majority of state substance abuse programs. The drug coordinator submits an annual report to the governor and the Iowa Legislature which describes the state substance abuse programs and includes an assessment of needs and advisory budget recommendations.

### *Narcotics Enforcement Advisory Council*

The Narcotics Enforcement Advisory Council consists of 8 members representing various law enforcement agencies across the

state. The council's statutory duties are to recommend policy for the Division of Narcotics Enforcement, Department of Public Safety and the Drug Abuse Prevention and Education Advisory Council.

### *Mini-DAWN Program Established*

This past year the Narcotics Council has supported, through formal recommendation, the establishment of a Mini-DAWN program within the Board of Pharmacy Examiners, Iowa Department of Public Health. The acronym DAWN stands for Drug Abuse Warning Network. DAWN is a national program designed to gather substance abuse information through hospital emergency rooms on a voluntary basis.

The Council supported the creation of a Diversion Investigative Unit within the Division of Narcotics Enforcement, Department of Public Safety. This unit of agents would target those who divert legal drugs for illegal purposes. The Narcotics Council also supported the recently enacted state tax on illegal drugs and precursor chemical legislation.

The Iowa Department of Revenue and Finance will now tax marijuana and controlled substances. The dollar amount of tax is based on the weight of marijuana or controlled substance that is possessed, distributed or sold.

The precursor chemical legislation requires that any sale or transfer of identified substances be reported to the Board of Pharmacy Examiners. The substances listed in the legislation are those that may be used as a precursor in the illegal production of a controlled substance.

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This information on public health matters is furnished and sponsored by the Iowa Department of Public Health.

## ***Drug Abuse Prevention and Education Advisory Council***

The Drug Abuse Prevention and Education Advisory Council consists of 9 members with a variety of professional backgrounds within the substance abuse arena. This Council is charged with making policy recommendations to state departments concerning substance abuse education, prevention and treatment programs. With council members having expertise in the areas of law enforcement, corrections, education, treatment and prevention, this Council represents the community approach to substance abuse prevention.

The Prevention and Education Council has worked to identify indicators that can be used in determining the use of illegal drugs in Iowa and evaluating the impact of substance abuse upon the Iowa community as a whole. Consistent indicators will provide a clearer picture of the substance abuse problem in Iowa and will aid in the development and targeting of state programs.

## ***Project SAFE***

Another program within the Governor's Alliance representing the community approach is Project SAFE (Substance Abuse Free Environment). This statewide community mobilization program is designed to help communities prepare and implement comprehensive and collaborative 2-year prevention strategies. Approximately 150 Iowa towns have been contacted by the Project SAFE Coordinator. Project SAFE community organizations include representatives of family, religious and educational institutions, media, civic groups, community action agencies, business and labor, health care systems, government, law enforcement, justice systems, treatment centers and aftercare services. As each individual community completes certain steps in the Project SAFE implementation plan, the community is designated as a SAFE community.

The office of the drug coordinator, Project SAFE coordinator and Governor's Alliance on Substance Abuse have retained the Governor's Alliance name as the umbrella heading for the office which encompasses all the activities just described. One function that has transferred from the Governor's Alliance is the administration of a portion of the High Risk

Youth grant program. This program is now fully administered by the Division of Substance Abuse, Iowa Department of Public Health.

The Drug Control and System Improvement grant program has entered the fourth year of funding for Iowa agencies. This federal grant program aids state and local governmental units in law enforcement projects, substance abuse treatment for criminal offenders and drug resistance education programs in

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*'DARE (Drug Abuse Resistance Education) is an education and prevention program for fifth and sixth graders in which law enforcement officers participate.'*

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which law enforcement officers participate. From 1987 to 1990, Iowa's allocation from this federal program increased from \$1.2 million to \$4.86 million. Pursuant to federal guidelines, roughly half of the funds are to be used for state government projects, and half must be passed through to local agencies.

Similar to the strategy of community involvement in substance abuse prevention, the federal government emphasizes community participation and agency coordination in the projects funded through the Drug Control program. Community support and involvement in the projects is demonstrated by the local match of 25%, which is required for all federally funded projects. This grant program is competitive and state and local agencies must submit applications for funding of a project. All grant periods run for one year. The Governor's Alliance in turn encourages community coordination in the Drug Control projects by making coordination an important element in the grant scoring process. All applications are reviewed and scored by a grant review committee of outside professionals and reviewed by staff.

Drug control law enforcement projects have been funded in the areas of multi-jurisdictional task forces, crime analysis, career criminal prosecution and criminal justice information systems, alternatives to detention,

*(Continued next page)*



jail, and prison and urban street drug sales enforcement programs.

Multi-jurisdictional task force programs integrate federal, state and local law enforcement officers and prosecutors for the purpose of enhancing inter-agency coordination and intelligence and facilitating multi-jurisdictional investigations. Task forces are of particular benefit to rural states such as Iowa. Small, rural law enforcement agencies are able to expand their investigative capabilities by working together and sharing personnel and equipment.

Projects funded under the other law enforcement areas identified have allowed local and state law enforcement agencies to provide additional officers and staff, prosecutors and equipment to local drug control efforts and undercover operations. Equipment purchased has included communications equipment such as radios and transmitters and computers used to analyze crime data.

Drug Abuse Resistance Education (DARE) programs are expanding to a large share of

Iowa communities. DARE is an education and prevention program for fifth and sixth graders in which law enforcement officers participate. Typically, local law enforcement officers teach this 17-week program in local schools as part of the overall school curriculum. DARE is a national program which originated in Los Angeles in 1983. Many communities also include a parent component in the DARE program.

The other primary funding area under the Drug Control Program is substance abuse treatment for adult and juvenile offenders. These projects provide for the expansion of substance abuse treatment programs in Iowa's adult correctional facilities and community-based corrections systems. Programs providing for substance abuse treatment in Iowa's juvenile institutions are also funded under the Drug Control program.

For further information on these activities, please contact the Governor's Alliance on Substance Abuse, Second Floor, Lucas State Office Building, Des Moines, Iowa 50319, 515/281-4518.



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## New Products and Programs

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**PROJECT LAUNCHED TO MAKE ADOLESCENTS HEALTHIER** — The AMA Department of Adolescent Health, in conjunction with the AMA National Coalition on Adolescent Health, is initiating a number of activities to promote health objectives for America's adolescents. Major activities include the creation of a Year 2000 Task Force (comprised of a variety of national membership organizations) to promote the implementation of the adolescent health components of the Year 2000 National Health Objectives; the creation of the National Adolescent Health Promotion Network (NAHPNet), a network of several thousand individuals and organizational representatives from multiple disciplines concerned with adolescent health at the national, state and local levels; the publication of *Target 2000*, a modular newsletter designed to provide information to and from members of NAHPNet and to representatives of organizations working with adolescents; a focus on issues of prevention and health promotion at the annual AMA National Congress on Adolescent Health; and special projects in 1991 and 1992 with schools and youth-serving organizations to facilitate the understanding and implementation of these objectives. Physicians interested in becoming a part of this project may direct inquiries to Betsy Davis, Project Coordinator, Department of Adolescent Health, American Medical Association, 535 N. Dearborn St., Chicago, Illinois 60610; 312/645-5471.

**NEW THERAPY FOR HYPERTENSION**—*Calan SR 180 mg* is a sustained-released formulation of Searle's *Calan*, the first calcium antagonist indicated for the initial treatment of mild-to-moderate hypertension. Marketed since 1986 in a 240-mg dose for this indication, *Calan SR* is now available in a 180-mg form for once-daily dosage. Most inexpensive sustained-released calcium antagonist with a new 180-mg recommended starting dose for newly diagnosed hypertensives. Part of the Searle program

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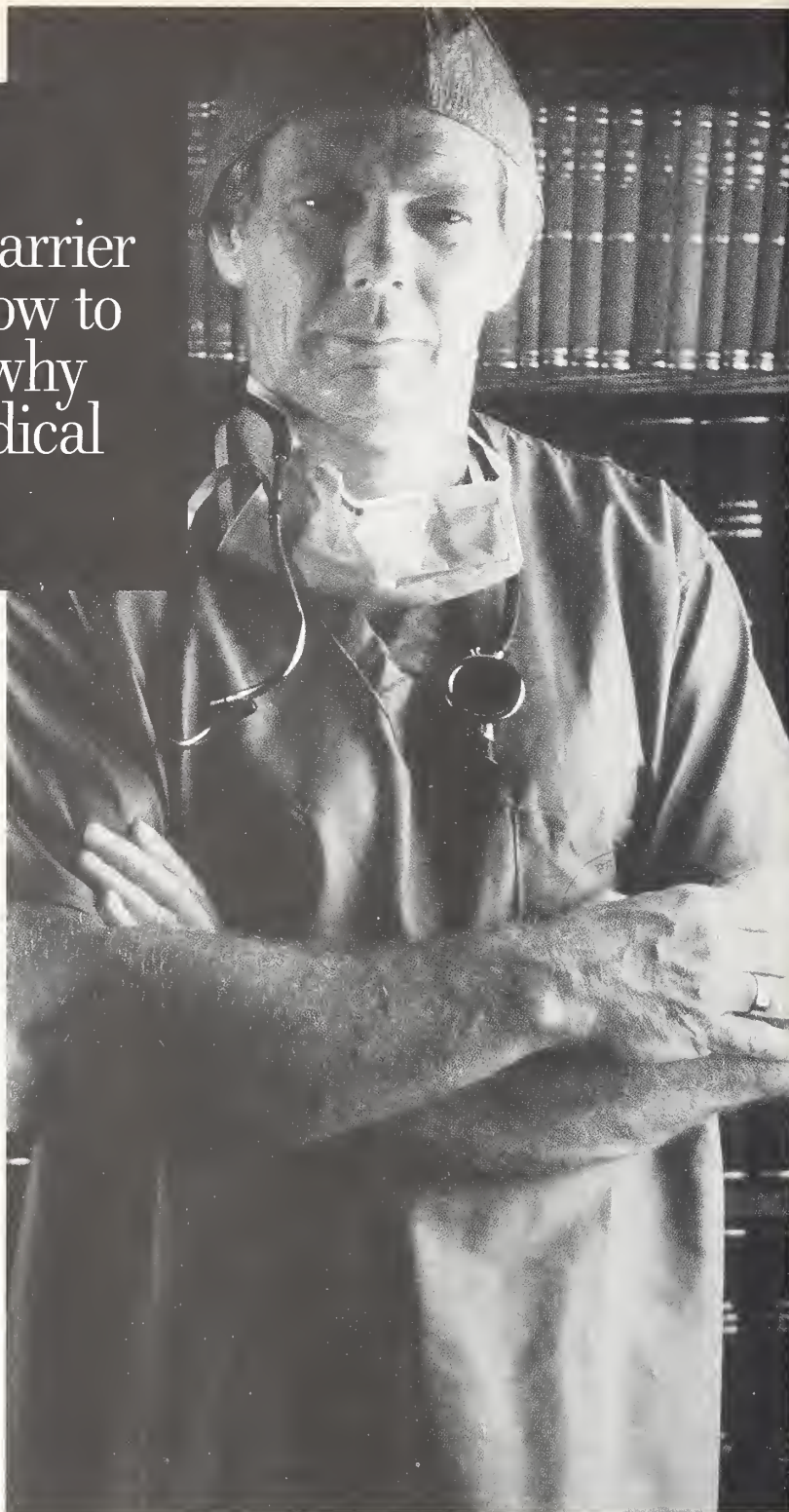
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## About Iowa Physicians

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**Dr. Michael Lindstrom** has begun practice in Rockford. Dr. Lindstrom received the D.O. degree from the University of Osteopathic Medicine and Health Sciences, Des Moines and completed a family practice residency at St. Joseph Mercy Hospital, Mason City. He is replacing **Dr. Russell Barrett** who recently moved to California to practice emergency medicine. **Dr. Shari Cummins** and **Dr. Julia Andreoni** have joined the new St. Luke's clinic in Tipton. Dr. Cummins received the M.D. degree from Indiana University School of Medicine, Indianapolis, Indiana and served an internal medicine residency at Providence Medical Center, Portland, Oregon. Dr. Andreoni received the M.D. degree from Loyola University Stritch School of Medicine, Maywood, Illinois and completed an internal medicine and pediatrics residency at University of Michigan Hospitals, Ann Arbor, Michigan. **Dr. Leszek Marczewski** and **Dr. Stephen Nowak** have joined Medical Associates in Sac City. Dr. Marczewski received the M.D. degree from the Academy of Medicine, Poznanienis, Poland and served a family practice residency at University of Nebraska Medical Center, Omaha, Nebraska. Dr. Nowak formerly practiced in Des Moines. **Dr. Laurie Summers** has joined the Park Clinic in Mason City as medical director of the Women's Health Center. Dr. Summers received the M.D. degree from University of Kansas School of Medicine, Wichita,

Kansas and completed a family practice residency there also. Prior to joining the clinic, Dr. Summers was in private practice in Buffalo, Wyoming. **Dr. Laval Peloquin** has begun practice at the La Porte City Clinic. Dr. Peloquin received the M.D. degree at Georgetown University School of Medicine, Washington, D.C. and served a residency at Northeast Iowa Medical Education Foundation, Waterloo. **Dr. John Goeppinger** has joined a multispecialty group of 25 physicians in Red Wing, Minnesota. Dr. Goeppinger practiced at Family Medicine Associates Clinic in Guttenberg for 9 years. **Dr. B. Kaza** has joined the staff of Northwest Iowa Mental Health Center, Spencer. Dr. Kaza had been in private psychiatric practice in Iowa Falls for 2 years. **Dr. Donald Pfeiffer**, McGregor, has retired after 42 years of medical practice. Dr. Pfeiffer received the M.D. degree from the U. of I. College of Medicine and interned at Englewood Hospital, Englewood, New Jersey. **Dr. John Canady** has been appointed director of the Cleft Clinic at the U. of I. College of Medicine. Dr. Canady recently completed a residency in plastic surgery at the University of Kansas School of Medicine, Kansas City, Kansas. **Dr. Gerald Sunner** has joined **Dr. Charles Semler, Jr.** and **Dr. John Koester** at Semler Medical Center in Story City. Dr. Sunner received the M.D. degree from the U. of I. College of Medicine and formerly practiced in Exeter, California.

### What's Your Line?

Do you or a colleague have a hobby or interest you'd like to share with other *IOWA MEDICINE* readers? Whatever the talent (an accomplished artist or musician, a craftsman, an international traveller . . .), we'd like to hear about it! Call Christine Clark at IMS headquarters, 223-1401 or 1-800-747-3070 or complete the form below and send to *IOWA MEDICINE*, 1001 Grand Avenue, West Des Moines, Iowa 50265.

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## Physicians Heal Each Other

**"T**ODAY, SOCIETY IS MUCH MORE aware of the troubled doctor, as is the rest of medicine. This awareness is necessary if we are going to help and care for our colleagues."

F. William Bennett, M.D. has worked with plenty of people who have problems with drug or alcohol abuse and, unfortunately, some of those people are physicians. Though experts say there are no reliable statistics on how many practicing physicians are troubled by substance abuse, the medical profession is very much aware of the need to offer these physicians a symbolic life jacket.

In Iowa, an important component of efforts to "help and care for our colleagues" is the Iowa Medical Society's Assistance Program for Troubled Physicians (APTP). Dr. Bennett, chairman of the committee which oversees the program, knows the importance of early intervention in helping doctors who have problems with drug or alcohol abuse.

"The IMS developed APTP so physicians could provide assistance to their colleagues before problems with alcohol/drug use or mental or physical illness became severe enough to cause impairment. Early intervention with rehabilitation and return to medical practice is the goal of the program," he comments.

When the committee is contacted by a concerned colleague, family member or friend regarding a possible troubled physician, "physician advocates" are assigned to work with the physician to determine if a problem exists which may lead to impairment. If it's appropriate, they encourage participation in treatment and provide support during the recovery process.

"There is a mistaken idea that contacting the APTP is the same as reporting the physician to the Iowa Board of Medical Examiners.

The IBME encourages the rehabilitation process to begin under the auspices of the APTP as long as the health of the public is not at risk," Dr. Bennett explains. "Sometimes the IBME refers cases to APTP when the physician has not reached the point of impairment but shows indications of a potential problem. The activity of the APTP most often involves working with physicians who have been investigated by the IBME and are in the recovery process."

The IMS has not forgotten the family members of troubled physicians — people who often need help coping with the substance abuse problem of their loved ones. In conjunction with APTP, the IMS Auxiliary has established "Helpline." Family members of troubled physicians can call Helpline for assistance from an Auxiliary member who has also experienced substance abuse by a loved one.

And, last February, the IMS took the lead in organizing the first Conference on Impaired Professionals, assisted by professional associations representing dentists, nurses, pharmacists, veterinarians and others. The extremely successful conference represented a giant step toward finding the most effective ways to assist impaired professionals.

When the disease is substance abuse, the old adage, "Physician, heal thyself" clearly does not apply. Troubled physicians need help with this tragic problem and the IMS is working hard to see they get it.

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August 1990

Iowa Medicine





# VASOTEC®

(ENALAPRIL MALEATE) MSD

VASOTEC is available in 2.5-mg, 5-mg, 10-mg, and 20-mg tablet strengths.

**Contraindications:** VASOTEC® (Enalapril Maleate, MSD) is contraindicated in patients who are hypersensitive to this product and in patients with a history of angioedema related to previous treatment with an ACE inhibitor.

**Warnings:** Angioedema. Angioedema of the face, extremities, lips, tongue, glottis, and/or larynx has been reported in patients treated with ACE inhibitors, including VASOTEC. In such cases, VASOTEC should be promptly discontinued and the patient carefully observed until the swelling disappears. In instances where swelling has been confined to the face and lips, the condition has generally resolved without treatment, although antihistamines have been useful in relieving symptoms. Angioedema associated with laryngeal edema may be fatal. **Where there is involvement of the tongue, glottis, or larynx likely to cause airway obstruction, appropriate therapy, e.g., subcutaneous epinephrine solution 1:1000 (0.3 mL to 0.5 mL), should be promptly administered.** (See ADVERSE REACTIONS.)

**Hypotension:** Excessive hypotension is rare in uncomplicated hypertensive patients treated with VASOTEC alone. Patients with heart failure given VASOTEC commonly have some reduction in blood pressure, especially with the first dose, but discontinuation of therapy for continuing symptomatic hypotension usually is not necessary when dosing instructions are followed, caution should be observed when initiating therapy. (See DOSAGE AND ADMINISTRATION.) Patients at risk for excessive hypotension, sometimes associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death, include those with the following conditions or characteristics: heart failure, hypotension, high-dose diuretic therapy, recent intensive diuresis or increase in diuretic dose, renal dialysis, or severe volume and/or salt depletion of any etiology. It may be advisable to eliminate the diuretic (except in patients with heart failure), reduce the diuretic dose, or increase salt intake cautiously before initiating therapy with VASOTEC in patients at risk for excessive hypotension who are able to tolerate such adjustments. (See PRECAUTIONS: Drug Interactions and ADVERSE REACTIONS.) In patients at risk for excessive hypotension, therapy should be started under very close medical supervision and such patients should be followed closely for the first two weeks of treatment and whenever the dose of enalapril and/or diuretic is increased. Similar considerations may apply to patients with ischemic heart disease or cardiovascular disease in whom an excessive fall in blood pressure could result in a myocardial infarction or cerebrovascular accident. If excessive hypotension occurs, the patient should be placed in the supine position and, if necessary, receive an intravenous infusion of normal saline. A transient hypotensive response is not a contraindication to further doses of VASOTEC, which usually can be given without difficulty once the blood pressure has stabilized. If symptomatic hypotension develops, a dose reduction or discontinuation of VASOTEC or concomitant diuretic may be necessary.

**Neutropenia/Agranulocytosis:** Another ACE inhibitor, captopril, has been shown to cause agranulocytosis and bone marrow depression, rarely in uncomplicated patients but more frequently in patients with renal impairment, especially if they also have a collagen vascular disease. Available data from clinical trials of enalapril are insufficient to show that enalapril does not cause agranulocytosis at similar rates. Foreign marketing experience has revealed several cases of neutropenia or agranulocytosis in which a causal relationship to enalapril cannot be excluded. Periodic monitoring of white blood cell counts in patients with collagen vascular disease and renal disease should be considered.

**Precautions: General Impaired Renal Function:** As a consequence of inhibiting the renin-angiotensin-aldosterone system, changes in renal function may be anticipated in susceptible individuals. In patients with severe heart failure whose renal function may depend on the activity of the renin-angiotensin-aldosterone system, treatment with ACE inhibitors, including VASOTEC, may be associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death.

In clinical studies in hypertensive patients with unilateral or bilateral renal artery stenosis, increases in blood urea nitrogen and serum creatinine were observed in 20% of patients. These increases were almost always reversible upon discontinuation of enalapril and/or diuretic therapy. In such patients, renal function should be monitored during the first few weeks of therapy.

Some patients with hypertension or heart failure with no apparent preexisting renal vascular disease have developed increases in blood urea and serum creatinine, usually minor and transient, especially when VASOTEC has been given concomitantly with a diuretic. This is more likely to occur in patients with preexisting renal impairment. Dosage reduction and/or discontinuation of the diuretic and/or VASOTEC may be required.

**Evaluation of patients with hypertension or heart failure should always include assessment of renal function.** (See DOSAGE AND ADMINISTRATION.)

**Hyperkalemia:** Elevated serum potassium ( $>5.7$  mEq/L) was observed in approximately 1% of hypertensive patients in clinical trials. In most cases these were isolated values which resolved despite continued therapy. Hyperkalemia was a cause of discontinuation of therapy in 0.28% of hypertensive patients. In clinical trials in heart failure, hyperkalemia was observed in 3.8% of patients, but was not a cause for discontinuation.

Risk factors for the development of hyperkalemia include renal insufficiency, diabetes mellitus, and the concomitant use of potassium-sparing diuretics, potassium supplements, and/or potassium-containing salt substitutes, which should be used cautiously, if at all, with VASOTEC. (See Drug Interactions.)

**Surgery/Anesthesia:** In patients undergoing major surgery or during anesthesia with agents that produce hypotension, enalapril may block angiotensin II formation secondary to compensatory renin release. If hypotension occurs and is considered to be due to this mechanism, it can be corrected by volume expansion.

#### Information for Patients:

**Angioedema:** Angioedema, including laryngeal edema, may occur especially following the first dose of enalapril. Patients should be so advised and told to report immediately any signs or symptoms suggesting angioedema (swelling of face, extremities, eyes, lips, tongue, difficulty in swallowing or breathing) and to take no more drug until they have consulted with the prescribing physician.

**Hypotension:** Patients should be cautioned to report lightheadedness, especially during the first few days of therapy. If actual syncope occurs, the patients should be told to discontinue the drug until they have consulted with the prescribing physician.

All patients should be cautioned that excessive perspiration and dehydration may lead to an excessive fall in blood pressure because of reduction in fluid volume. Other causes of volume depletion such as vomiting or diarrhea may also lead to a fall in blood pressure; patients should be advised to consult with the physician.

**Hyperkalemia:** Patients should be told not to use salt substitutes containing potassium without consulting their physician.

**Neutropenia:** Patients should be told to report promptly any indication of infection (e.g., sore throat, fever) which may be a sign of neutropenia.

**NOTE:** As with many other drugs, certain advice to patients being treated with enalapril is warranted. This information is intended to aid in the safe and effective use of this medication. It is not a disclosure of all possible adverse or intended effects.

#### Drug Interactions:

**Hypotension: Patients on Diuretic Therapy:** Patients on diuretics and especially those in whom diuretic therapy was recently instituted may occasionally experience an excessive reduction of blood pressure after initiation of therapy with enalapril. The possibility of hypotensive effects with enalapril can be minimized by either discontinuing the diuretic or increasing the salt intake prior to initiation of treatment with enalapril. If it is necessary to continue the diuretic, provide close medical supervision until the initial dose for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and DOSAGE AND ADMINISTRATION.)

**Agents Causing Renin Release:** The antihypertensive effect of VASOTEC is augmented by antihypertensive agents that cause renin release (e.g., diuretics).

**Other Cardiovascular Agents:** VASOTEC has been used concomitantly with beta-adrenergic-blocking agents, methylglucosides, nitrates, calcium-blocking agents, hydralazine, prazosin, and digoxin without evidence of clinically significant adverse interactions.

**Agents Increasing Serum Potassium:** VASOTEC attenuates potassium loss caused by thiazide-type diuretics. Potassium-sparing diuretics (e.g., spironolactone, triamterene, or amiloride), potassium supplements, or potassium-containing salt substitutes may lead to significant increases in serum potassium. Therefore, if concomitant use of these agents is indicated because of demonstrated hypokalemia, they should be used with caution and with frequent monitoring of serum potassium. Potassium-sparing agents should generally not be used in patients with heart failure receiving VASOTEC.

**Lithium:** Lithium toxicity has been reported in patients receiving lithium concomitantly with drugs which cause elimination of sodium, including ACE inhibitors. A few cases of lithium toxicity have been reported in patients receiving concomitant VASOTEC and lithium and were reversible upon discontinuation of both drugs; it is recommended that serum lithium levels be monitored frequently if enalapril is administered concomitantly with lithium.

**Pregnancy—Category C:** There was no fetotoxicity or teratogenicity in rats treated with up to 200 mg/kg/day of enalapril (333 times the maximum human dose). Fetotoxicity, expressed as a decrease in average fetal weight, occurred in rats given 1200 mg/kg/day of enalapril but did not occur when these animals were supplemented with saline. Enalapril was not teratogenic in rabbits. However, maternal and fetal toxicity occurred in some rabbits at doses of 1 mg/kg/day or more. Saline supplementation prevented the maternal and fetal toxicity seen at doses of 3 and 10 mg/kg/day, but not at 30 mg/kg/day (50 times the maximum human dose).

Radiocactivity was found to cross the placenta following administration of labeled enalapril to pregnant hamsters. There are no adequate and well-controlled studies of enalapril in pregnant women. However, data are available that show enalapril crosses the human placenta. Because the risk of fetal toxicity with the use of ACE inhibitors has not

been clearly defined, VASOTEC® (Enalapril Maleate, MSD) should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Postmarketing experience with all ACE inhibitors thus far suggests the following with regard to pregnancy outcome. Inadvertent exposure limited to the first trimester of pregnancy has not been reported to affect fetal outcome adversely. Fetal exposure during the second and third trimesters of pregnancy has been associated with fetal and neonatal morbidity and mortality.

When ACE inhibitors are used during the later stages of pregnancy, there have been reports of hypotension and decreased renal perfusion in the newborn. Diglycidylamines in the mother has also been reported, presumably representing decreased renal function in the fetus. Infants exposed *in utero* to ACE inhibitors should be closely observed for hypotension, oliguria, and hyperkalemia. If oliguria occurs, attention should be directed toward support of blood pressure and renal perfusion with the administration of fluids and pressors as appropriate. Problems associated with prematurity such as patent ductus arteriosus have occurred in association with maternal use of ACE inhibitors, but it is not clear whether they are related to ACE inhibition, maternal hypertension, or the underlying prematurity.

**Nursing Mothers:** Milk in lactating rats contains radioactivity following administration of  $^{14}$ C enalapril maleate. It is not known whether this drug is secreted in human milk. Because many drugs are secreted in human milk, caution should be exercised when VASOTEC is given to a nursing mother.

**Pediatric Use:** Safety and effectiveness in children have not been established.

**Adverse Reactions:** VASOTEC has been evaluated for safety in more than 10,000 patients, including over 1000 patients treated for one year or more. VASOTEC has been found to be generally well tolerated in controlled clinical trials involving 2987 patients.

**HYPERTENSION:** The most frequent clinical adverse experiences in controlled trials were: headache (5.2%), dizziness (4.3%), and fatigue (3%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in controlled clinical trials were: diarrhea (1.4%), nausea (1.4%), rash (1.4%), orthostatic effects (1.2%), and asthenia (1.1%).

**HEART FAILURE:** The most frequent clinical adverse experiences in both controlled and uncontrolled trials were: dizziness (7.9%), hypotension (6.7%), orthostatic effects (2.2%), syncope (2.2%), cough (2.2%), chest pain (2.1%), and diarrhea (2.1%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in both controlled and uncontrolled clinical trials were: fatigue (1.8%), headache (1.8%), abdominal pain (1.6%), asthenia (1.6%), orthostatic hypotension (1.6%), vertigo (1.6%), angina pectoris (1.5%), nausea (1.3%), vomiting (1.3%), bronchitis (1.3%), dyspnea (1.3%), urinary tract infection (1.3%), rash (1.3%), and myocardial infarction (1.2%).

Other serious clinical adverse experiences occurring since the drug was marketed or adverse experiences occurring in 0.5% to 1% of patients with hypertension or heart failure in clinical trials in order of decreasing severity within each category:

**Cardiovascular:** Cardiac arrest, myocardial infarction or cerebrovascular accident, possibly secondary to excessive hypotension in high-risk patients (see WARNINGS: Hypotension); pulmonary embolism and infarction; pulmonary edema; rhythm disturbances; atrial fibrillation; palpitation.

**Digestive:** Nausea, pancreatitis, hepatitis (hepatocellular or cholestatic jaundice), melena, anorexia, dyspepsia, constipation, glossitis, stomatitis, dry mouth.

**Musculoskeletal:** Muscle cramps.

**Nervous/Psychiatric:** Depression, confusion, ataxia, somnolence, insomnia, nervousness, paresthesia.

**Urogenital:** Renal failure, oliguria, renal dysfunction (see PRECAUTIONS and DOSAGE AND ADMINISTRATION).

**Respiratory:** Bronchospasm, rhinorrhea, sore throat and hoarseness, asthma, upper respiratory infection.

**Skin:** Exfoliative dermatitis, toxic epidermal necrolysis, Stevens-Johnson syndrome, herpes zoster, erythema multiforme, urticaria, pruritus, alopecia, flushing, hyperhidrosis.

**Special Senses:** Blurred vision, taste alteration, anosmia, linitis, conjunctivitis, dry eyes, tearing.

A symptom complex has been reported which may include a positive ANA, an elevated erythrocyte sedimentation rate, arthralgias/arthritis, myalgias, fever, serositis, vasculitis, leukocytosis, eosinophilia, photosensitivity, rash, and other dermatologic manifestations.

**Angioedema:** Angioedema has been reported in patients receiving VASOTEC (0.2%). Angioedema associated with laryngeal edema may be fatal. If angioedema of the face, extremities, lips, tongue, glottis, and/or larynx occurs, treatment with VASOTEC should be discontinued and appropriate therapy instituted immediately. (See WARNINGS.)

**Hypotension:** In the hypertensive patients, hypotension occurred in 0.9% and syncope occurred in 0.5% of patients following the initial dose or during extended therapy. Hypotension or syncope was a cause for discontinuation of therapy in 0.1% of hypertensive patients. In heart failure patients, hypotension occurred in 6.7% and syncope occurred in 2.2% of patients. Hypotension or syncope was a cause for discontinuation of therapy in 1.9% of patients with heart failure. (See WARNINGS.)

#### Clinical Laboratory Test Findings:

**Serum Electrolytes:** Hyperkalemia (see PRECAUTIONS), hyponatremia.

**Creatinine, Blood Urea Nitrogen:** In controlled clinical trials, minor increases in blood urea nitrogen and serum creatinine were observed upon discontinuation of therapy, were observed in about 0.2% of patients with essential hypertension treated with VASOTEC alone. Increases are more likely to occur in patients receiving concomitant diuretics or in patients with renal artery stenosis. (See PRECAUTIONS.) In patients with heart failure who were also receiving diuretics with or without digitalis, increases in blood urea nitrogen or serum creatinine, usually reversible upon discontinuation of VASOTEC and/or other concomitant diuretic therapy, were observed in about 11% of patients. Increases in blood urea nitrogen or creatinine were a cause for discontinuation in 1.2% of patients.

**Hemoglobin and Hematocrit:** Small decreases in hemoglobin and hematocrit (mean decreases of approximately 0.3 g% and 1.0 vol%, respectively) occur frequently in either hypertension or heart failure patients treated with VASOTEC but are rarely of clinical importance unless another cause of anemia coexists. In clinical trials, less than 0.1% of patients discontinued therapy due to anemia.

**Other (Causal Relationship Unknown):** In marketing experience, rare cases of neutropenia, thrombocytopenia, and bone marrow depression have been reported. A few cases of hemolysis have been reported in patients with G6PD deficiency.

**Liver Function Tests:** Elevations of liver enzymes and/or serum bilirubin have occurred.

**Dosage and Administration: Hypertension:** In patients who are currently being treated with a diuretic, symptomatic hypotension occasionally may occur following the initial dose of VASOTEC. The diuretic should, if possible, be discontinued for two to three days before beginning therapy with VASOTEC to reduce the likelihood of hypotension. (See WARNINGS.) If the patient's blood pressure is not controlled with VASOTEC alone, diuretic therapy may be resumed.

If the diuretic cannot be discontinued, an initial dose of 2.5 mg should be used under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS: Drug Interactions.)

The recommended initial dose in patients not on diuretics is 5 mg once a day. Dosage should be adjusted according to blood pressure response. The usual dosage range is 10 to 40 mg per day administered in a single dose or in two divided doses. In some patients treated once daily, the antihypertensive effect may diminish toward the end of the dosing interval. In such patients, an increase in dosage or twice-daily administration should be considered. If blood pressure is not controlled with VASOTEC alone, a diuretic may be added.

Concomitant administration of VASOTEC with potassium supplements, potassium salt substitutes, or potassium-sparing diuretics may lead to increases of serum potassium (see PRECAUTIONS).

**Dosage Adjustment in Hypertensive Patients with Renal Impairment:** The usual dose of enalapril is recommended for patients with a creatinine clearance  $> 30$  mL/min (serum creatinine of up to approximately 3 mg/dL). For patients with creatinine clearance  $\leq 30$  mL/min (serum creatinine  $\geq 3$  mg/dL), the first dose is 2.5 mg once daily. The dosage may be titrated upward until blood pressure is controlled or to a maximum of 40 mg daily.

**Heart Failure:** VASOTEC is indicated as adjunctive therapy with diuretics and digitalis. The recommended starting dose is 2.5 mg once or twice daily. After the initial dose of VASOTEC, the patient should be observed under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS: Drug Interactions.) If possible, the dose of the diuretic should be reduced, which may diminish the likelihood of hypotension. The appearance of hypotension after the initial dose of VASOTEC does not preclude subsequent careful dose titration with the drug, following effective management of the hypotension. The usual therapeutic dosing range for the treatment of heart failure is 5 to 20 mg daily given in two divided doses. The maximum daily dose is 40 mg. Once-daily dosing has been effective in a controlled study, but nearly all patients in this study were given 40 mg, the maximum recommended daily dose, and there has been much more experience with twice-daily dosing. In addition, in a placebo-controlled study which demonstrated reduced mortality in patients with severe heart failure (NYHA Class IV), patients were treated with 2.5 to 40 mg per day of VASOTEC, almost always administered in two divided doses. (See CLINICAL PHARMACOLOGY, Pharmacodynamics and Clinical Effects.) Dosage may be adjusted depending upon clinical or hemodynamic response. (See WARNINGS.)

**Dosage Adjustment in Patients with Heart Failure and Renal Impairment or Hyponatremia:** In patients with heart failure who have hyponatremia (serum sodium  $< 130$  mEq/L) or with serum creatinine  $> 1.6$  mg/dL, therapy should be initiated at 2.5 mg daily under close medical supervision. (See DOSAGE AND ADMINISTRATION, Heart Failure, WARNINGS, and PRECAUTIONS: Drug Interactions.) The dose may be increased to 2.5 mg b.i.d., then 5 mg b.i.d. and higher as needed, usually at intervals of four days or more, if at the time of dosage adjustment there is not excessive hypotension or significant deterioration of renal function. The maximum daily dose is 40 mg.

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September 1990

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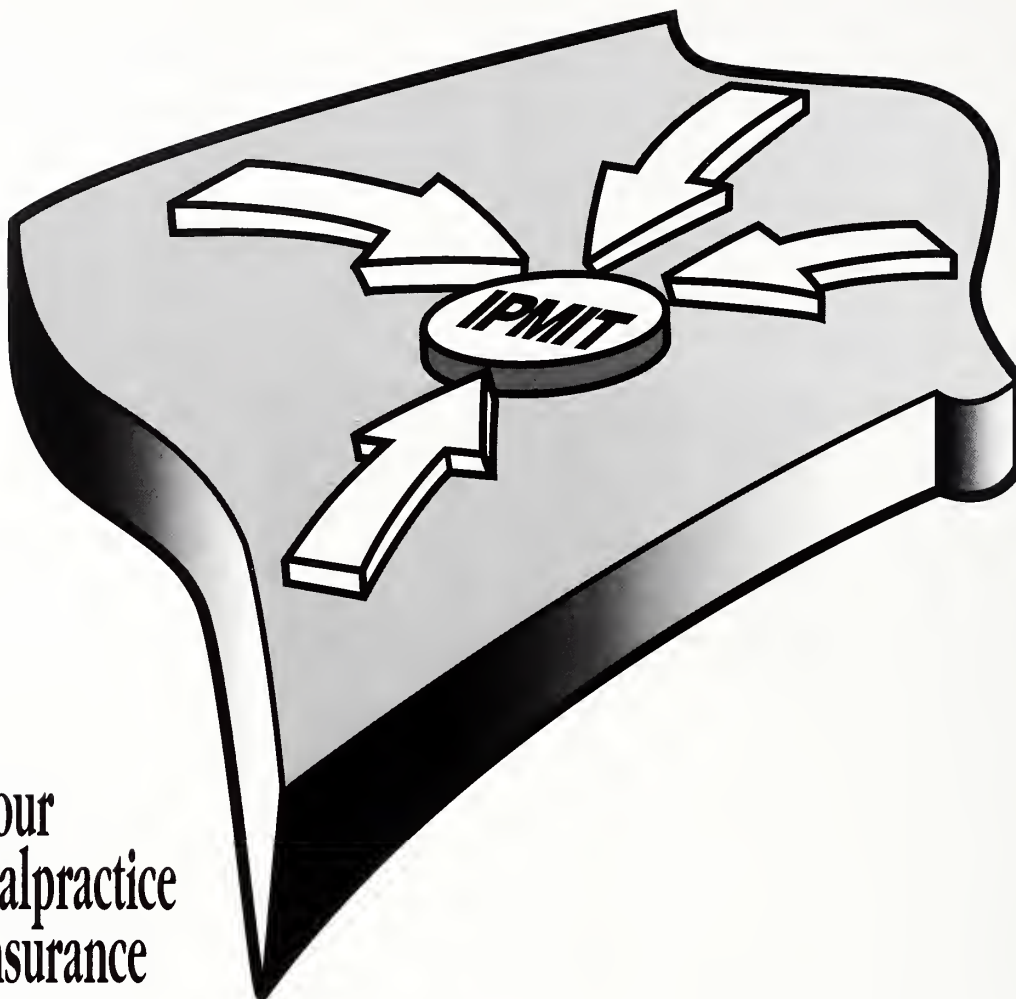
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September 1990

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## In This Issue

### Departments

- 427 President's Privilege
- 431 Letters to the Editor
- 441 The Editor Comments
- 442 CME Notebook
- 445 Biomedical Ethics
- 446 Practice Management
- 448 Iowa Department of Public Health
- 451 About Iowa Physicians
- 452 Classified Advertising
- 455 Advertising Index
- 456 Physicians' Directory
- 458 In the Public Interest

### Special Articles

- 428 **Rehabilitation Medicine: Concepts and Trends**  
*Physical medicine in Iowa is changing as rapidly as it is growing.*  
**William deGravelles, Jr., M.D., Lloyd Holt, C.I.R.S.**
- 433 **Changing Attitudes Lead to Accomplishments**  
*This month's author, a quadriplegic since 1986, has interesting and valuable observations on treatment of disabled patients.*  
**Daniel Clark**

### Scientific Article

- 437 **Rehabilitating Head Injuries**  
*Physicians should be aware that even mild head injuries can have long-term effects.*  
**Charles Denhart, M.D.**

### About the Cover

The 116-ton locomotive "Iowan" is an impressive sight as it chugs across the high bridge over the Des Moines river valley outside Boone. The steam engine was the last to be made in China's Datong Locomotive Works and pulls passengers on the Boone and Scenic Valley Railroad. Translated, the Chinese symbols on the front of the engine say, "The end of a great Chinese era. The beginning of the American dream." Photo courtesy of *BOONE TODAY*.



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**References**

1. *USP DI Update*, September/October 1988, p 120.
2. *Br J Clin Pharmacol* 1985;20: 710-713.
3. Data on file, Lilly Research Laboratories.
4. *Scand J Gastroenterol* 1987;22(suppl 136): 61-70.
5. *Am J Gastroenterol* 1989;84: 769-774.

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**Indications and Usage:** 1. *Active duodenal ulcer*—for up to eight weeks of treatment. Most patients heal within four weeks.

2. *Maintenance therapy*—for healed duodenal ulcer patients at a reduced dosage of 150 mg h.s. The consequences of therapy with Axid for longer than one year are not known.

**Contraindication:** Known hypersensitivity to the drug. Use with caution in patients with hypersensitivity to other H<sub>2</sub>-receptor antagonists.

**Precautions:** *General*—1. Symptomatic response to nizatidine therapy does not preclude the presence of gastric malignancy.

2. Dosage should be reduced in patients with moderate to severe renal insufficiency.

3. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

**Laboratory Tests**—False-positive tests for urobilinogen with Multistix® may occur during therapy.

**Drug Interactions**—No interactions have been observed with theophylline, chloridazepoxide, lorazepam, lidocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450 enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increased serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

**Carcinogenesis, Mutagenesis, Impairment of Fertility**—A two-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a two-year study in mice, there was no evidence of a carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given

an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a two-generation, perinatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

**Pregnancy—Teratogenic Effects—Pregnancy Category C**—Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect; but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in one fetus, and at 50 mg/kg, it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in one fetus. There are, however, no adequate and well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

**Nursing Mothers**—Studies in lactating women have shown that 0.1% of an oral dose is secreted in human milk in proportion to plasma concentrations. Because of growth depression in pups reared by treated lactating rats, a decision should be made whether to discontinue nursing or the drug, taking into account the importance of the drug to the mother.

**Pediatric Use**—Safety and effectiveness in children have not been established.

**Use in Elderly Patients**—Healing rates in elderly patients were similar to those in younger age groups as were the rates of adverse events and laboratory test abnormalities. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

**Adverse Reactions:** Clinical trials of varying durations included almost 5,000 patients. Among the more common adverse events in domestic placebo-controlled trials of over 1,900 nizatidine patients and over 1,300 on placebo, sweating (1% vs 0.2%), urticaria (0.5% vs <0.01%), and somnolence (2.4% vs 1.3%) were significantly more common with nizatidine. It was not possible to determine whether a variety of less common events was due to the drug.

**Hepatic**—Hepatocellular injury (elevated liver enzyme tests or alkaline phosphatase) possibly or probably related to nizatidine occurred in some patients. In some cases, there was marked elevation (>500 IU/L) in SGOT or SGPT and, in a single instance, SGPT was >2,000 IU/L. The incidence of elevated liver enzymes overall and elevations of up to three times the upper limit of normal, however, did not significantly differ from that in placebo patients. Hepatitis and jaundice have been reported. All abnormalities were reversible after discontinuation of Axid.

**Cardiovascular**—In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in two individuals administered Axid and in three untreated subjects.

**CNS**—Rare cases of reversible mental confusion have been reported. **Endocrine**—Clinical pharmacology studies and controlled clinical trials showed no evidence of antiandrogenic activity due to nizatidine. Impotence and decreased libido were reported with equal frequency by patients on nizatidine and those on placebo. Gynecomastia has been reported rarely.

**Hematologic**—Fatal thrombocytopenia was reported in a patient treated with nizatidine and another H<sub>2</sub>-receptor antagonist. This patient had previously experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

**Integumentary**—Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

**Hypersensitivity**—As with other H<sub>2</sub>-receptor antagonists, rare cases of anaphylaxis following nizatidine administration have been reported. Because cross-sensitivity among this class has been observed, H<sub>2</sub>-receptor antagonists should not be administered to those with a history of hypersensitivity to these agents. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

**Other**—Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine have been reported.

**Overdosage:** Overdoses of Axid have been reported rarely. If overdosage occurs, activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis for four to six hours increased plasma clearance by approximately 84%.

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## President's Privilege

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**Robert Whinery, M.D.**



## Dedication

**D**EDICATION — THAT IS WHAT MEDICINE is all about. It takes plenty of it to persevere in medical school and our education beyond.

Dedication to good medicine and to our patients is a daily ritual. Physicians haven't forgotten this relationship and we must not permit outside forces — government, liability threat, performance standards, competition and marketing — to interfere.

Doctors seem to be under constant criticism from many directions and this has blurred or partially negated the good we do. However, because of individual dedication we can stand proud of ourselves and our profession.

Necessity in various forms will force us to accept some changes; yet our dedication to medicine will not allow us to be anything but good doctors.

This month brings the Iowa Medical Society to another dedication. I refer to the dedication of the new Iowa Medical Society headquarters building in West Des Moines.

This structure brings together all elements of the Society — IMS, IMS Services and IPMIT — under one roof. It will allow us to be more efficient, effective and versatile in the future.

The building represents the physical evidence of dedication by Iowa Medical Society members, leadership and staff. Thank you for all of these forms of your dedication!

I cannot close without saying how proud all Iowa medicine is of our executive vice president, Eldon Huston. In August he became president of the large and prestigious American Association of Medical Society Executives (AAMSE). Congratulations, Eldon. We appreciate your dedication to medicine and Iowa physicians.

A handwritten signature in dark ink that reads "R. Whinery, M.D." in a cursive style.

Robert Whinery, M.D.  
President



# Rehabilitation Medicine: Concepts and Trends

WILLIAM DEGRAVELLES, JR., M.D.

LLOYD HOLT, C.I.R.S.

Des Moines, Iowa

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*The latest developments in the rapidly growing specialty of physical medicine/rehabilitation are discussed.*

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**P**HYSICAL MEDICINE/REHABILITATION continues to grow as a specialty. There are 18 Board Certified physiatrists (specialists in physical medicine and rehabilitation) throughout Iowa and 7 private-sector comprehensive medical rehabilitation units, all part of general medical/surgical centers. This article provides an overview of the specialty, some present day concepts, trends and challenges.

The specialty of physical medicine and rehabilitation has 70 accredited residency programs (none in Iowa). In 1988, the training programs offered 1,005 residency positions and 984 were filled. In 1990, over 99.7% of the residency programs are filled.<sup>1</sup> Around 1970, there were approximately 200 board certified specialists throughout the country. Today, 3,456 physicians are certified as diplomates.

Howard A. Rusk, M.D. is frequently acknowledged as one of the medical pioneers of

modern rehabilitation medicine. Dr. Rusk introduced the concept of the "supermarket" where all services in medical rehabilitation were gathered in one place. The novel perspective was in the organization of services rather than the uniqueness of its individual products. Disabled individuals have multiple needs which are best met through an interdisciplinary team housed at one location — a rehabilitation facility.

## *Rehabilitation Facilities*

Over the years there has been an evolution in the design of rehabilitation facilities. Rather than different specific therapeutic areas (such as physical therapy, occupational therapy or speech therapy) there may be treatment sections for head injury, spinal cord injury, stroke and other treatment areas specifically for a disability category. The team concept has begun to focus on the multidimensional needs of patients within certain diagnostic areas. There are some rehabilitation facilities that have been established specifically for certain clinical disabilities, but the majority of rehabilitation facilities are comprehensive and admit a variety of disabilities.

Although most rehabilitation facilities were established as specific units of a general hospital or in a building attached to a medical center, the number of "freestanding" rehabilitation facilities is increasing. Some of the largest growth is in "CORFs" (Comprehensive Outpatient Rehabilitation Facilities) and specialty post-acute, outpatient programs. For example, last year the Iowa Methodist Medical Center established the Younker Rehabilitation

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Dr. deGravelles is medical director of rehabilitation services at Younker Rehabilitation Center, Iowa Methodist Medical Center, Des Moines. Mr. Holt is rehabilitation coordinator at Younker Rehabilitation Center.

Life Quality Center as a day treatment program for post-acute head injury rehabilitation. Rehabilitation does not end after discharge from an inpatient facility.

### ***Quality of Care Issues***

Certification and accreditation issues have become increasingly important to rehabilitation facilities as a representation of service quality. Rehabilitation facilities use computer programs to assess patient outcome in quantitative terms over specific time intervals including follow up after discharge. These program evaluation systems provide each rehabilitation center with specific goal attainment and outcome data. Post discharge follow-up provides an opportunity for patients and families to give their own functional assessment through an objective question/answer format. This information is added to their inpatient data to track individual recovery over time, thereby giving excellent quantitative and qualitative information to the rehabilitation center and its staff.

All clinical services in rehabilitation centers are required by accrediting bodies to evaluate quality of care via quality assessment (QA) studies of various treatment techniques, management problems and any other factor which might affect treatment outcome. These studies are monitored by hospital QA coordinators, the medical director of the rehabilitation center and individual department heads.

### ***Rehabilitation in Iowa***

Iowa ranks first in the nation in the percent of population of persons 85 + years old; second in the nation for persons 75 + and third in the nation for persons over 65.<sup>2</sup> Long-term disability is more common in the older population. We see increased numbers of patients with cerebral vascular accidents, arthritis, amputations resulting from vascular pathology and other age related disabilities including joint replacements and other orthopedic conditions. It is not uncommon for rehabilitation facilities to have more than 60% of their patients over age 65. We are also seeing many patients with multi-system disabilities and are finding an increased need for additional medical and/or surgical assistance during rehabilitation.

There is increased rehabilitation intervention with Iowa's pediatric population. In addition

to the birth defect related disabilities, developmental disabilities, spina bifida and muscular dystrophy, we are seeing more complex conditions due to decreased infant mortality.

Selective dorsal root rhizotomy for relief of spasticity, particularly in children with cerebral palsy, is an increasingly used procedure. This surgery requires an intensive inpatient and outpatient rehabilitation program to maximize functional return after surgery.

In the ambulatory pediatric and adolescent population, early referral following even minor head injury has proven valuable in determining the existence of cognitive deficits through neuropsychological assessment. This results in pinpointing cognitive deficits and implementing cognitive rehabilitation early in the clinical picture, rather than waiting until the patient displays learning problems after returning to school.

Findings of cognitive deficits in spinal cord injury patients, particularly those with cervical injuries, has been a motivating factor in requesting neuropsychological screening for these patients. Treating the physical consequences is always paramount but cognitive deficits, if identified, will have long-term educational and vocational implications in the total rehabilitation effort.

Auto accidents, work related injuries, leisure and farm injuries have replaced war injuries as the leading causes for acute traumatic injury rehabilitation. The drought experienced in 1988 and 1989 resulted in spinal cord injuries from diving into shallow water areas. Alcohol still plays a large role in spinal cord and traumatic brain injuries. We suspect that rehabilitation medicine will play an important role with patients overcoming the effects of Lyme Disease which is increasing in central Iowa.

The Americans with Disabilities Act was signed into law by President Bush on July 26, 1990. Iowa's U.S. Senator Tom Harkin introduced this bipartisan legislation which should make life for the disabled a little easier in the transportation, accessibility and vocational areas. We are still in need of independent and transitional living facilities, especially in central Iowa, for the head injured population and those with spinal cord and other limiting neurological and/or orthopedic conditions.

*(Continued next page)*



## Electrodiagnosis

Electromyography (EMG) and nerve conduction studies play a significant role in physiatry practice. Hurd's review lists numerous diseases wherein EMG will be abnormal.<sup>3</sup> Included are disorders affecting the anterior horn cells, axonal disorders, disorders of neuromuscular junction, cell membrane disorders and muscle fiber diseases.

Nerve conduction studies add much information about the speed of conduction of the nerve impulses to consider generalized neuropathies particularly involving the myelin sheath, as well as local neuropathies such as entrapment neuropathies. This gives objective determination of entrapments such as carpal (or tarsal) tunnel syndrome, ulnar nerve entrapment/compression at the elbow or wrist, and so forth. In addition, EMG is helpful in industrial back pain since it will differentiate root pathology from peripheral nerve entrapments as well as plexus involvements.

## Trends

Physical medicine and rehabilitation continues to be a significantly undermanned specialty throughout the United States.<sup>4</sup> Statistically, we need 28 physiatrists in Iowa rather than 18 just to bring us to the national norm.

Rehabilitation facility costs continue to rise, particularly due to an inadequate supply of human resources concomitant with advances in technology. Physical and occupational therapists are both in short supply throughout the country but particularly in Iowa perhaps due partly to the lack of educational facilities for these disciplines. As rehabilitation gravitates from a multidisciplinary team to an interdisciplinary team or even a transdisciplinary team, it becomes critical for each individual to have a strong foundation in his/her own profession and for the teams to be represented by all disciplines.<sup>5</sup>

Technology has had a great impact in the development of new, innovative therapeutic and assistive devices. We have advanced computer systems, like Balance Master™ helping stroke and head injured patients relearn balance skills through a sophisticated biofeedback principle. Computerized Functional Electrical Stimulation (CFES) bikes such as REGYS I™ and ERGYS I™ allow patients with

complete spinal cord injuries to produce lower extremity pedaling motion through sequential transcutaneous electrode firing of various muscle groups. A CFES induced exercise program is reputed to increase strength, endurance and the bulk of stimulated muscles.<sup>6</sup> Computers are used extensively in cognitive rehabilitation to improve memory, attention and concentration.

Assistive technology is changing so rapidly that the Iowa Rehabilitation Technology Alliance was formed 2 years ago to promote the awareness, use, research and development of rehabilitation technology.<sup>7</sup> In addition, the Assistive Technology Information Network through the University of Iowa aids professionals, parents, individuals with disabilities and their families by providing information on the availability of commercially-made assistive devices.<sup>8</sup> There are numerous examples of assistive technology. At Younker Rehabilitation Center, totally computerized communication systems for completely non-speaking, severely paralyzed persons have been developed using single-switch (or signal) activating devices to enable these individuals to communicate.<sup>9</sup> An Ankeny, Iowa firm will be test marketing the Iowa Electronic Elbow this Fall.<sup>10</sup> This device is a motorized brace allowing smooth extension and flexion of the arm for self-feeding and other tasks affording independence.

Training in computer operations has vocational implications for the disabled since it can be accomplished even by those with restricted mobility. Project COMEBACK at the Younker Rehabilitation Center is a prevocational training program which introduces personal computer technology to persons with recent injury or severe physical limitations. In cooperation with a vocational counselor, goals are set for return or entry into work or school settings.

We appear to be approaching a new era where rehabilitation is no longer limited by medicine and technology but primarily by the affordability quotient. The price for independence has always been high but never have the intangible rewards been so great.

## References

References noted in this article are available from the authors or the editors of *IOWA MEDICINE*.

## IOWA MEDICINE Wins Medical Journalism Award

*IOWA MEDICINE*, Journal of the Iowa Medical Society, has won an honorable mention in the 1990 Sandoz Pharmaceutical Medical Journalism Contest.

The annual contest recognizes excellence in magazine design, layout and editing. The contest is judged by professors of design and journalism.

A recent issue of the Sandoz Pharmaceutical Medical Journalism newsletter contained an article on *IOWA MEDICINE* covers. The IMS journal was praised for producing "attractive and attention-getting" covers which are also inexpensive.

*IOWA MEDICINE* also won awards in the Sandoz medical journalism contest in 1987, 1986, 1983, 1978 and 1976.

### Letters to the Editor

## Editorial Draws Response

Dear Editor:

Thank you for your excellent editorial in the June issue of *IOWA MEDICINE*. You have echoed my sentiments exactly. The negative consequences of the use of tobacco and liquor and the practice of gambling seem so obvious that it is surprising that we don't see more articles like yours in print. If there is any way to get your editorial published more widely, I would be all for it. — *M. Donald Merrill, M.D., Des Moines.*

## Important Clarification

Dear Editor:

I have just received the July, 1990 issue of *IOWA MEDICINE*. I was interested in "Cholesterol Controversy," which contained excerpts from Drs. Schrott and Palumbo's presentation at the IMS Scientific Session April 20. I attended that session and found their comments especially interesting.

Not knowing for sure who has access to *IOWA MEDICINE*, such as the lay public or media, I found the excerpted quote on page

## New IMS Headquarters Completed

The new IMS headquarters building, located at 1001 Grand Avenue, is completed after nearly one year of construction.

The headquarters was built under the direction of the Board of Trustees to unite the 3 components of the Society — the IMS, IMS Services and IPMIT. A formal dedication is planned for September 20.

The new building will be featured on the November cover of *IOWA MEDICINE*. The issue will also contain a special insert on the building.

350, attributed to Dr. Schrott, to be misleading. If you read the text at the bottom of page 349 in the second column from which this statement has been extrapolated, you see he is specifically talking about LDL cholesterol values. If someone were to just skim through the article and see the quote, they could mistakenly believe that the new numbers for "total cholesterol" should be under 130 and that over 160 is too high. This could confuse the public or the media if they do not take the time to read the whole article to see that he was specifically referring to LDL cholesterol.

Thank you for your consideration of this minor but important clarification. — *Greg Haessler, M.D., Medical Director, Principal Mutual Life Insurance Company, Des Moines.*

## LETTERS TO THE EDITOR

If you have a comment regarding something you've read in *IOWA MEDICINE* or an observation on conditions affecting the practice of medicine in Iowa, don't keep it to yourself. Share your thoughts in a letter to the editor. We'd like to hear from you.



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# 7<sup>TH</sup> ANNUAL

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Gail Slap, M.D., Associate Professor of Medicine and Pediatrics, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania  
**TOPIC:** *Challenges in Adolescent Medicine for the 1990s*

Daryl K. Granner, M.D., Professor of Medicine; Chairman, Department of Molecular Physiology and Biophysics, Vanderbilt College of Medicine, Nashville, Tennessee  
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**Daniel Clark**



# Changing Attitudes Lead To Accomplishments

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***Daniel Clark, 23, is an occupational therapy associate at Younker Rehabilitation Center, Iowa Methodist Medical Center, Des Moines. He teaches computer skills and applications to disabled individuals through Younker Rehabilitation Center's pre-vocational "Project COMEBACK" Program. A quadriplegic, Dan has interesting observations regarding problems encountered by disabled individuals.***

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*Editors' Note: In June, 1986, Dan was injured in a diving accident which resulted in quadriplegia. He was hospitalized for 5 weeks and came to Des Moines for a 4-month rehabilitation program at Younker Rehabilitation Center. Through Younker Center's vocational counselor, Dan became interested in computer programming. He attended Des Moines Area Community College and acquired a degree. Dan has been an employee of Younker Rehabilitation Center since September, 1989. He uses a motorized wheelchair and a number of assistive devices.*

### **Describe your hospital rehabilitation — what problems do you remember most?**

I was fortunate to have had a number of health science courses in school and realized what happened to me immediately after the accident. I understood the consequences and knew it was going to be a long haul for rehabilitation — that I would need to work hard and that I was going to get frustrated. I kept a good attitude and acclimated well.

One "problem" during acute rehabilitation was that I did not receive much information about services and opportunities available after discharge. I got some information through a friendship with another patient who had been injured and was attending college. Peers with similar disabilities serve an educational role. Perhaps this is the reason for the success of support groups for each type of disability.

### **What do you expect from private practitioners regarding disabled persons?**

I think physicians need to consider parking lot, office and examination room accessibility for disabled patients. People who have problems with mobility and transferring cannot be expected to get on high examination tables. If a patient's wheelchair has no recliner system and the exam table is too high, a physical exam may be a less than ideal situation for patient and physician! In addition, exam rooms may be too small for wheelchairs to turn around or there may be obstacles in the way.

I would also like to suggest that physicians could better serve the disabled by "fine tuning" listening skills. It can be difficult to do this, especially with patients who have communication disorders and due to time constraints on doctors, but in the long run it can save time for both patient and physician.

### **What are your suggestions to private practice physicians taking care of disabled individuals?**

Since private practice physicians treat such a variety of health problems in the non-disabled

*(Continued next page)*



population, it may be unusual for them to assume primary care for those with long-term disabilities such as spinal cord injuries and brain injuries. I recommend these doctors do some networking with rehabilitation physicians or other rehabilitation professionals to determine what services are available, especially in their community.

**What type of transportation problems have you encountered?**

Scheduling of transportation services has been a real problem. Many services allow only 30 minutes to get you to an appointment. If they are late or need to pick up others, it is impossible to get to the appointment on time. The Americans with Disabilities Act will eventually provide equal access to transportation, but we will be limited to fixed route buses and this can pose a problem.

Rehabilitation facilities teach patients to do sliding board transfers, pivots and other techniques to get in and out of vehicles. However, if a disabled individual does not or cannot drive, it can be a major problem both vocationally and socially.

**What architectural barriers do you encounter?**

My biggest problem is heavy doors. Usually they are wide enough for me to get through but I have trouble opening and closing them. Some are difficult to open and close because they have round knobs rather than lever handles.

Pay telephones are a menace! Even if they are installed lower on the wall, I have difficulty inserting coins into the slots. Rotary dial phones are impossible for me to use. Even push-button phones are difficult unless I can manage to dial a "0" and use an operator assist. This means a higher telephone bill.

Water fountains are a problem, especially those with push-button finger-operated valves. The easiest ones are those with a foot pedal since I can roll over the foot pedal with the front wheel of my electric wheelchair.

**What are job problems for disabled individuals, especially those in wheelchairs?**

I really don't think opportunities are available yet for individuals with disabilities — speaking from experience. I have been fortunate in working with personal computers to be able to adapt to almost any task. Disabled people

with more restricted movement or function may need modified work stations, adjustable height tables or a work environment shaped like an arc to facilitate access to anything needed. Some may require assistive devices such as a mouthstick to activate a keyboard, a "sip and puff" keyboard or even a voice command workstation.

It's very difficult to find a job. I had several interviews while in college. In one situation, I was interviewed for 15 minutes while non-disabled students were interviewed for 45 minutes or longer. In some interviews, I noticed a feeling of receptiveness but the interviewers exhibited hesitance in phrasing questions and were not at ease during the interviewing process.

**Do you think the Americans with Disabilities Act will improve some of these situations?**

Structures (barriers) can change, but I don't know about attitudes. If we can change attitudes, there is no end to what we can accomplish.

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# Rehabilitating Head Injuries

CHARLES DENHART, M.D.

Des Moines, Iowa

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***Even mild head injuries can result in permanent cognitive deficits in attention and concentration.***

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UNTIL RECENTLY IN IOWA it was extremely difficult to estimate the incidence of traumatic brain injury as no reliable reporting mechanism existed. The first year in which a state mandatory registry existed, approximately 10,000 cases of head injury and neurologic entities such as anoxic encephalopathy and intracerebral hemorrhage, which are similar from a rehabilitative standpoint, were reported. Nationally, an estimated 7 million head injuries occur annually; 500,000 require hospitalization. This corresponds to an incidence of approximately 3,000 injuries per 100,000 population per year nationally.

Even mild head injuries can result in subtle but permanent cognitive deficits in attention and concentration, memory or behavior. If the individual's vocation is cognitively rigorous, mild deficits can cause significant difficulty. Even mild head injuries can cause a slow return to work with 33% unable to return to their job after 3 months. The prevalence of markedly dis-

abled survivors of traumatic head injury in the United States is approximately 400 per 100,000 population. These individuals will not successfully return to their previous vocation.

## ***Incidence of Head Injury***

Head injury is 2-3 times more common in males than females. The highest risk group is 10-19 years (34% of head injuries). Next is 20-29 years (28% of head injuries). The age incidence is bimodal with another peak after the age of 75 years when falls become more common.

Interestingly, 31% of patients with head injuries have had previous head injuries. The incidence of a second head injury in adults is 3 times that of a first head injury in the general population. The incidence of a third and subsequent head injury is about 8 times that of the general population. Moreover, the cognitive effects of multiple head injuries are additive. This accounts for punch drunk boxers. Appropriate counseling of patients and parents following a first, even mild, head injury is suggested.

Outside major cities, by far the most common mechanism of injury is a closed rather than open (penetrating) head injury. Over 50% of head injuries are the result of traffic accidents; falls are the next most common cause. The incidence is dependent upon location. A study in Charlottesville, Virginia revealed only 12% of patients are injured as a result of interpersonal violence. In contrast, in Scotland, head injuries as the result of violence are twice as common as those resulting from automobile accidents.

Seven percent of head injury patients die during or before acute hospitalization. At 3

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Dr. Denhart practices physical medicine at Younker Rehabilitation Center in Des Moines.

THE IOWA MEDICAL FOUNDATION HAS DESIGNED THIS ARTICLE AS THE HENRY ALBERT SCIENTIFIC PRESENTATION FOR SEPTEMBER 1990



months following injury, 4% are in a persistent vegetative state, 8% are severely disabled, 22% are moderately disabled and 66% demonstrate good recovery. However, even good recovery can include functionally significant if subtle cognitive and behavioral deficits. These outcomes are assessed 3 months following injury; there can be small improvements in motor and perceptual function for a year after injury and improvements in cognitive function for 3 years. The most readily apparent deficits are motor and perceptual deficits, concomitant orthopedic injuries and medical complications. Long-term cognitive and behavioral deficits—generally more disabling—can also occur. These include difficulty with memory and learning, attention, initiation, judgement and communication, inappropriate behavior secondary to lack of impulse control and various affective changes.

### *Serious Complications*

Motoric deficits may include early decorticate or decerebrate posturing while the patient is still comatose. Posturing generally decreases after a variable period of time. Conversely, spasticity is not present initially but can become more pronounced with time. Functionally, posturing and spasticity interfere with voluntary motor function and may lead to development of contractures.

Following coma, many patients will develop unilateral or bilateral hemiparesis. This may be asymmetrical, appearing to be a tri-paresis or paraparesis. The functional significance of hemiparesis is decreased mobility and ability to perform activities of daily living. This can range from a mild limp and/or clumsiness of the upper extremity to complete lack of trunk and neck control with inability to sit without the use of restraints, swallow food or handle secretions.

In addition to paresis and spasticity, other motor deficits include cerebellar and non-cerebellar ataxia, athetosis, basal ganglia dysfunction, tremor, mild clonus and seizures.

Cognitive deficits include difficulty with attention and concentration, initiation and goal direction, judgement and perception, learning and memory, speed of information processing and difficulty with communications. It is typical for patients to do well in some neuropsychological tests, but poorly in others. A deficit in one small area such as ability to maintain attention

can have a diffuse effect on other cognitive functions. Poor attention, for instance, would lead to poor performance in memory communication or processing of information.

Behavior abnormalities closely linked with cognitive deficits are the most enduring effects of traumatic brain injury. Behavioral deficits vary depending on the patient's premorbid personality, social situation or the sight and severity of the lesion. However, damage to the frontal lobes and its limbic connections is quite common in closed head injury. This results in a flattened affect, lack of goal directed behavior, loss of drive and impulsivity. This behavioral picture, to a greater or lesser extent, is typical of most head injured patients. The most common complaint from patients who have had mild head injuries and returned to their previous lifestyle involves lack of impulse control, such as being easy to anger or not being able to "get it together" under mildly extraordinary circumstances.

The above list is far from exhaustive. Not mentioned in any depth were communication disorders associated with head injury, perceptual deficits, sexual dysfunction, the effects of neurologic deficits on activities of daily living and the effects of cognitive and behavioral deficits on patient's family and social functioning.

### *Long-Term Treatment*

In the acute rehabilitation setting (not an oxymoron since some severely injured patients are cared for in long-term head trauma treatment facilities) the most effective vehicle to deal with the wide range of deficits is the team consisting of health care professionals with skills to address problems encountered. A typical team includes: rehabilitation physician; physical, occupational, speech and recreation therapists; neuropsychologist; social worker/case manager; nurse and rehabilitation aide.

The team is able to communicate easily to address the constantly changing neurologic, behavioral and social situation of the head injured patient during the 2 months following injury.

Most patients suffering minor head injuries do not enter the hospital or stay only one or 2 days. Nevertheless one-third suffer prolonged post traumatic sequelae and, as has been pointed out earlier, this can have a profound effect on their lives. This is a very appropriate group to receive help from a cognitive rehabilitation team in an outpatient setting.

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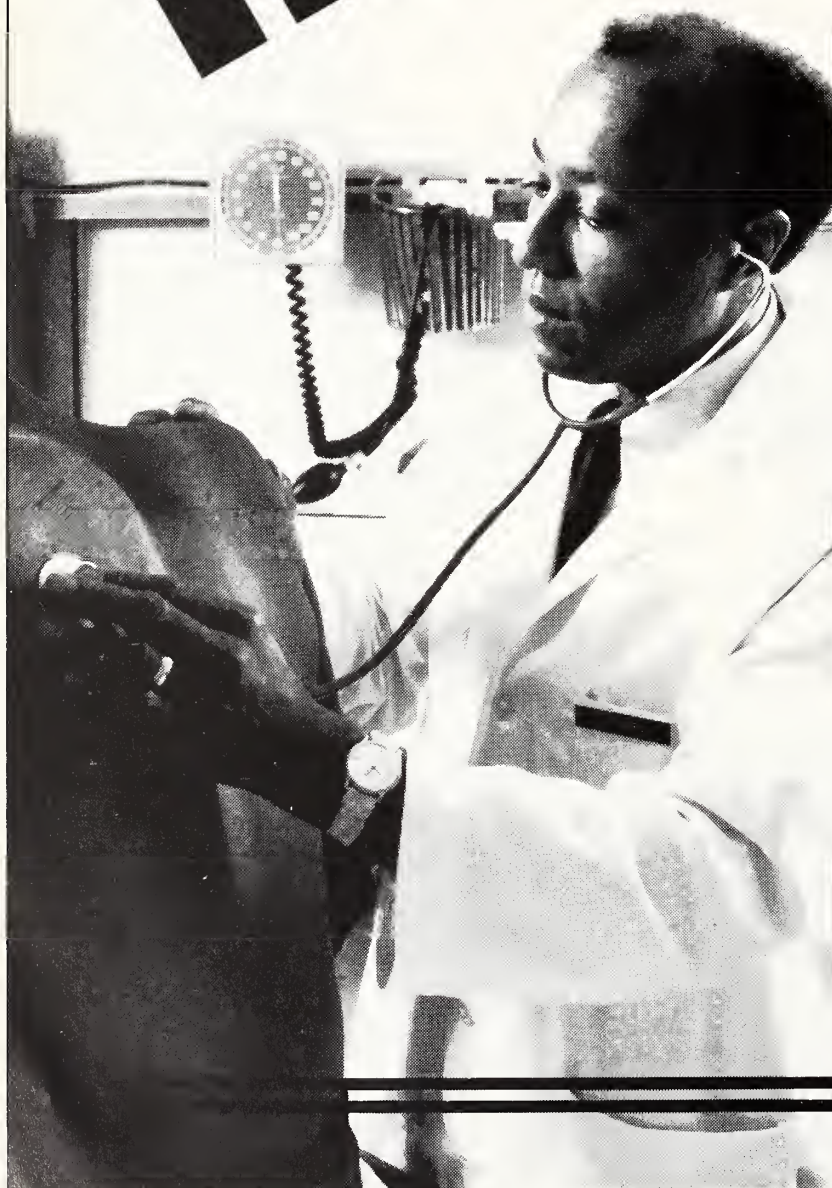
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Marion E. Alberts, M.D.



# Tribute to Rehabilitation Medicine

**M**EDICINE IS NOT AN EXACT SCIENCE. Based on known scientific knowledge at a given time the practice of medicine changes with the passage of time. Art and medicine have been compared often. Medicine is an art. Just as other art forms, the art of medicine changes. Today's accepted methods likely will fall by the wayside in future decades. We view some practices of the past as primitive; what was known in the past may have been based on unproved or now disproved scientific knowledge.

The specialty of physical medicine has a particularly interesting history that exemplifies my opening statements. The poliomyelitis epidemics of the 1940s and '50s introduced physicians to a different concept of therapy for paralyzed extremities. That concept was not without considerable controversy. The divergence of opinions was based on long-standing precepts in the practice of orthopedics, but not necessarily upon scientific knowledge. The medical profession was challenged by Sister Elizabeth Kenny, a nurse from the Australian bush country. Her campaign against immobilization of paralyzed limbs created a stir in the medical world.

Past concepts of treatment of paralyzed limbs associated with poliomyelitis involved braces and other aids to standing and locomotion and surgical correction of disabilities due to the paralysis. All sorts of splints, braces and trusses were developed. It was considered proper to immediately immobilize the paralyzed limbs of the poliomyelitis victim, even in the acute phase of the dis-

ease. The goal was to prevent contractions and deformities. Aftercare included recommendations for massage, hydrotherapy and controlled exercises. Later, surgical procedures were directed toward correction of deformities; various forms of braces were used to enhance the function of the involved limbs.

Sister Kenney's concept was a bombshell. She condemned immobilization. She postulated that immobilization prevented the immediate treatment of the disease in the acute phase, prolonged the condition of muscle spasms, prevented the treatment of restoration of muscle contractions and had an adverse psychologic impact upon the patient.

Most orthopedic surgeons were outraged that a nurse would dare challenge their practices, but rehabilitation medicine received a new impetus. Much research was instituted and in a short time the disease was better understood. A vaccine was developed and poliomyelitis has been conquered in most parts of the world.

Developments in rehabilitation medicine have been phenomenal in recent decades. The poliomyelitis epidemics, the challenges of disabled veterans and the engineering capabilities involved with effective prosthetics are tributes to this specialty. Controversy, whether it be in concepts of medicine or as a result of conflicts between nations, has its compensation. Unfortunately, it is at a cost of much suffering.

We are indebted to the rehabilitation experts for giving hope to those disabled by illness or injury. — M.E.A.



Richard M. Caplan, M.D.



# Caught Doing It Right

I'VE JUST COMPLETED 6 YEARS of service as a Johnson County representative to the Iowa Foundation for Medical Care (IFMC) Board of Directors. My association with the IFMC dates to its beginnings in 1972, when I agreed to chair its continuing education committee. My interest in its work has naturally fastened especially on the educational implications. The techniques for assessing physician behavior were primitive then. They've changed a lot and now are slightly better.

The IFMC has taken lots of heat from Iowa physicians over these years, some of it even justified. I continue to be impressed, though, that a distressing number of physicians still don't grasp the logic and methods of peer review and quality assurance. In medical schools and residencies the formal educational efforts about such logic and methods are meager, and therefore predictably do little to improve the needed insights and skills. Being in practice often leads to scuttlebutt-acquired misinformation unless one actually participates by reading, attending educational meetings, or most of all, by joining others in setting criteria and actually reviewing one's peers. It's one of those things you learn best by walking in particular moccasins.

A widely prevailing "wisdom" suggests the review process not only encounters but generates "bad apples" and engages gleefully in vilifying noble beings. Not so. A recent data display at an IFMC meeting showed me that the problems that engage

the attention and adrenalin of its principal review committee are a remarkably low proportion of the total of reviewed cases. For example, among 5,382 admissions to intermediate care facilities between 7/1/89 and 2/28/90, only 105 (1.95%) were referred by IFMC coordinator-reviewers to physician-reviewers, who ruled for denial in only 20 (0.37%) of the admissions. In 21,054 instances of continued-stay review, only 1.13% reached physician-reviewers and only 21 (0.1%) of the entire group were denied.

In regard to "quality" and "quality points," the reviews in small institutions (fewer than 360 discharges annually) that found severity level 1 problems were only 0.45%; for severity level 2 and 3 problems, 3.1% of the reviews were so identified. For larger institutions the respective frequencies of problem-finding were 0.47% and 1.6%. For ambulatory surgery reviews, the frequencies were 3.7% and 2.7%. Considering the inherent imperfections of medical knowledge, the practitioners, and the review process, I feel cheered by these low numbers.

Still another way to view the issue: in the calendar year since "quality points" were first issued (starting 4/1/89) only 450 Iowa physicians received notice of a quality "blemish" of any sort, including many very small issues. That means 8 of 9 have not. Although improvement remains as a goal, we ought to say, collectively, as people should do more often with each other, "Aha, I caught you doing something right." Inasmuch as pressures and negative sentiments abound, we need to notice and take heart when the glass is not 1/9 empty, but 8/9 full.

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Dr. Caplan is Associate Dean for Continuing Medical Education at the University of Iowa College of Medicine.

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# Implications of CRUZAN

**M**Y MARCH, 1990 COLUMN FOCUSED on some of the ethical aspects of the Nancy Cruzan case. Now, given the significance of the CRUZAN decision by the U.S. Supreme Court, it is important to address some of the implications of the decision for patients and physicians in Iowa.

In its simplest terms, this medical and legal case coming out of Missouri concerns the plight of a 33-year-old woman in a persistent vegetative state who has for 7 years been a prisoner of modern medical technology, as represented by gastrostomy tube feedings.

In broader terms, the Cruzan case pits the incompletely known preferences of the patient and the current wishes of her family against the public interests of the state of Missouri and the concerns of physicians and other health professionals at the rehabilitation hospital in which she is a patient. Unresolved at the institutional level, the case is now the leading example of what happens when problematic medical cases are turned over to the courts for resolution.

It is important to emphasize what the U.S. Supreme Court did not do in CRUZAN. The justices *did not* reject the constitutional right of autonomous patients (patients who have decision-making capacity) to refuse life-sustaining medical treatment. They *did not* discount an appropriate role for the surrogates of non-autonomous patients (patients who lack decision-making capacity) or say physicians are legally obligated to keep patients alive as long as possible. Moreover, the justices *did not* put feeding tubes in a legal category separate from other medical treatments or say that physicians who cooperate with reasonable requests by non-autonomous patients' surrogates to abate life-sustaining treatment are in any way putting themselves in legal jeopardy.

For these reasons, CRUZAN did not change the law outside the state of Missouri regarding the legality of abating life-sustaining treatment (including tube feedings) on behalf of nonautonomous patients. However, the court weakened the legal right of Nancy Cruzan and other nonautonomous patients in Missouri to refuse, through their surrogates, life-sustaining treatment contrary to their known preferences or best interests.

By affirming the Missouri decision to require "clear and convincing" evidence of a nonautonomous patient's earlier preferences, the court allowed Missouri to set up a procedural roadblock that effectively constitutes an involuntary waiver of the legal right to refuse treatment. New York also requires clear and convincing evidence in such cases.

What are the implications of CRUZAN for patients and physicians in Iowa? The fact the court endorsed the legal right of autonomous persons to refuse unwanted life-sustaining medical interventions and allowed Missouri (and other states) to set up procedural roadblocks for abating treatment with nonautonomous patients has several implications:

- Patients should talk with their physicians early and frequently about their treatment preferences and choice of a personal surrogate in the event they lose their capacity to make decisions.

- Physicians should ask their patients about their preferences on possible life-sustaining treatment options and surrogates.

- We should all document, in writing, our preferences on treatment options and surrogates.

- We should have durable power of attorney for health care legislation in Iowa.

- Hospitals should establish clear policies on abating life-sustaining treatment, to avoid the need for going to court.

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This column is written by Robert Weir, Ph.D., director of biomedical ethics for the University of Iowa College of Medicine.



# The Keys to Patient Satisfaction

**Y**OUR PATIENTS' LEVEL OF SATISFACTION with the care and service you provide stems from a number of factors. These include diagnostic accuracy, treatment effectiveness, accessibility and waiting time, atmosphere, billing and insurance filing procedures and skill and friendliness of staff.

It is important to remember that your patients are influenced by these factors. Patients have certain expectations and if they are not met on a consistent basis, they may look elsewhere.

### *'Internal Audit'*

There are several things you can do to convey a positive image to patients. First conduct an "internal audit" of your office and building. Look for anything that could create a poor first impression. For example, are the walls scuffed, marred or in need of a coat of paint to brighten the office? Are carpets clean and up-to-date? Are furnishings comfortable? Are appointments overlooked?

### *Staff Review*

The second area to review is your staff. The interaction that takes place between them and your patients has an important impact on patient satisfaction. Some objective questions to ask yourself include: Is your staff friendly and outgoing? Do they make a special effort to make small talk with the patients? Is the telephone answered promptly and appropriately? Are questions carefully explained to patients? Have you received complaints about one or more staff members?

If you suspect your staff lacks good communication skills, consider some form of training. Improper patient service skills can have a devastating effect on the perceptions of your practice as a whole.

### *Self Evaluation and Staff Critique*

As the primary provider of services to your patients, you should examine your own patient

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*'The most important test is asking patients what they think of your service either verbally or by way of patient satisfaction surveys. Make the necessary changes in your practice and you will realize the long-term benefits.'*

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service skills as well. Ask yourself some of the same questions you ask about your staff: Am I taking enough time to explain procedures, diagnoses, recovery time, medication instructions, etc.? Do I try to put patients at ease? Am I compassionate? Do I have a sense of humor? Do I respond to telephone inquiries promptly?

In addition to evaluating the practice yourself, ask staff to critically evaluate it as well. Of course, the most important test is asking patients what they think of your service either verbally or by way of patient satisfaction surveys. Use this input to make the necessary changes in your practice and you will realize the long-term benefits.

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David Arringdale is a marketing consultant with McGladrey & Pullen, Des Moines.

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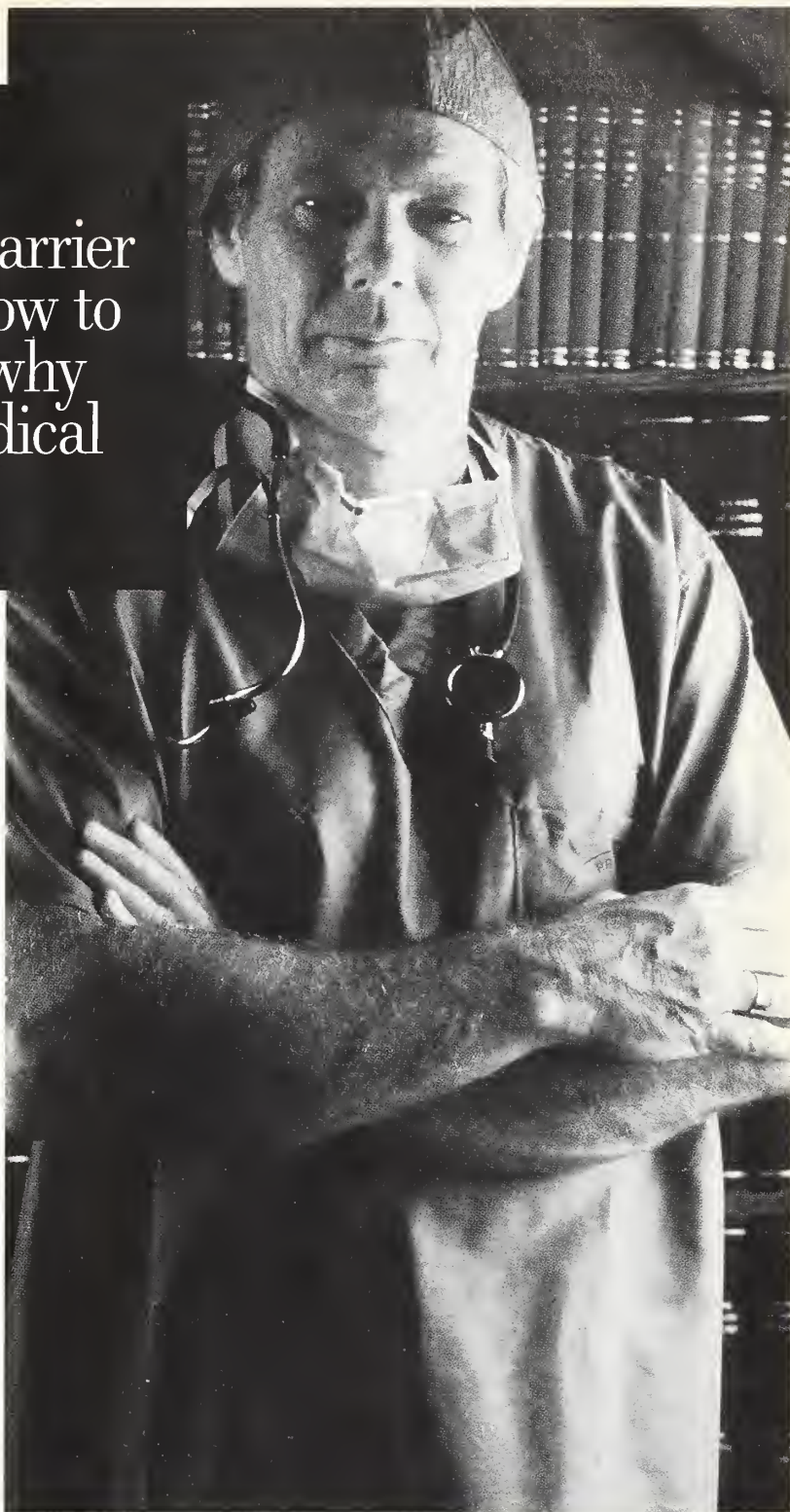
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## Public Health Nursing Services

**I**N A RECENT ARTICLE IN THE *Wall Street Journal*, health analysts estimated certain in-home health treatments cost 25-50% less than similar care in hospitals — a remarkable savings.

Iowa's public health nursing services are contributing to this savings by making it possible for more Iowans to be treated in their homes. A survey of Iowa public health nursing agencies for the week of January 8, 1990 showed that 5,851 clients were seen and over half (3,038) would not have been able to stay in their homes without the service.

One example of the cost savings of home nursing care involves a seriously ill woman who wanted to remain at home. The public health nurse went to her home to monitor the intravenous catheter system, apply antibiotic ointment and change the sterile dressing. The client lived for 6 weeks and the nurse completed 37 home visits at a cost of \$1,554. A skilled nursing facility for that time would have cost in excess of \$3,000. The public health nursing cost was reimbursed by Medicare.

All of Iowa's 99 counties have Medicare certified home care services available through their local public health agency. Medicare certification is recognized by private insurance companies and Medicaid and allows for reimbursement for clients receiving home care nursing. This certification process is completed annually by the Health Care Financing Administration (HCFA). The survey and certification process is an indicator of quality. Iowa does not license home health agencies.

The public health nurse is available for those who receive Medicaid services or insurance coverage from third party payers. Clients with no insurance are charged depending on their abil-

ity to pay. They are required to provide financial information to receive services under the sliding fee scale.

While public health nurses are governed by a local board of health, they accept orders from physicians for dependent nursing functions. All skilled nursing services under Medicare are under a physician's order.

The Nurse Practice Act does not allow nurses to accept orders from out of state physicians. This is difficult because many clients on border counties travel to other states for physician services. The Public Health Nursing Bureau, the Iowa Board of Nursing and the Iowa Board of Medical Examiners are working to resolve this long-standing problem.

### *A Variety of Services*

In addition to home health care, public health nurses provide a variety of health-related services at the community level including: prenatal care, community health education, follow-up on communicable disease, school nursing, immunizations, clinic services and community needs assessment. Last year 24,133 Iowans participated in 1,114 community education classes presented by public health nurses.

The IDPH depends on local public health departments and public health nurses to conduct follow-up on individuals who are reported to have an infectious disease. This may include a visit to the person's home to determine the history of the illness or to assure medications are being taken properly. Last year 830 visits were initiated and 1,175 tuberculosis contacts were investigated. A total of 2,280 Iowans received preventative therapy for tuberculosis.

Many of Iowa's rural schools depend on public health nurses. In a 1989 survey, 64 public health nursing agencies provided school ser-

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This information on public health matters is furnished and sponsored by the Iowa Department of Public Health.

vices. Last year public health nurses saw 56,322 students and referred 2,637 students to other health care professionals.

### Preventing Disease

The prevention of disease is part of the public health nurse's duties in many of Iowa's counties. Under the auspices of the local board of health, 209,863 childhood immunizations were given. The childhood vaccines were provided to the local public health agencies by the IDPH.

Local boards of health are required to audit the records of children attending school to de-

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*'While public health nurses are governed by a local board of health, they accept orders from physicians for dependent nursing functions. All skilled nursing services under Medicare are under a physician's order.'*

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termine compliance with preschool immunization law. Last year a total of 529,591 records were audited by public health nurses.

This past year some agencies began flu immunizations for the elderly in conjunction with the local Area Agency on Aging.

Public health nurses provide a variety of clinics across the state to assist in screenings for cholesterol, diabetes or elevated blood pressure. Over 200,000 people were screened at 10,000 chronic disease clinics. Medical referrals were given for 15,309 or 7.6% of those individuals screened.

Health promotion services are provided by public health nurses in the home, during an office visit or at a clinic site. Health promotion is an independent nursing practice to assist Iowans of all ages to maintain or regain a healthy life.

Many of the health promotion visits are made to pregnant women and/or new mothers and babies. They receive educational and emotional support during their pregnancy. After delivery the new mother and baby may be visited at home by the nurse. Information about care of the baby and sound nutritional practices is provided.

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**Adverse Reactions:** Yohimbine readily penetrates the (CNS) and produces a complex pattern of responses in lower doses than required to produce peripheral alpha-adrenergic blockade. These include, anti-diuresis, a general picture of central excitation including elevation of blood pressure and heart rate, increased motor activity, irritability and tremor. Sweating, nausea and vomiting are common after parenteral administration of the drug.<sup>1,2</sup> Also dizziness, headache, skin flushing reported when used orally.<sup>1,3</sup>

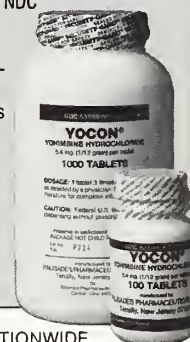
**Dosage and Administration:** Experimental dosage reported in treatment of erectile impotence.<sup>1,3,4</sup> 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.<sup>3</sup>

**How Supplied:** Oral tablets of Yocon<sup>®</sup> 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

#### References:

1. A. Morales et al., New England Journal of Medicine: 1221. November 12, 1981.
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3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
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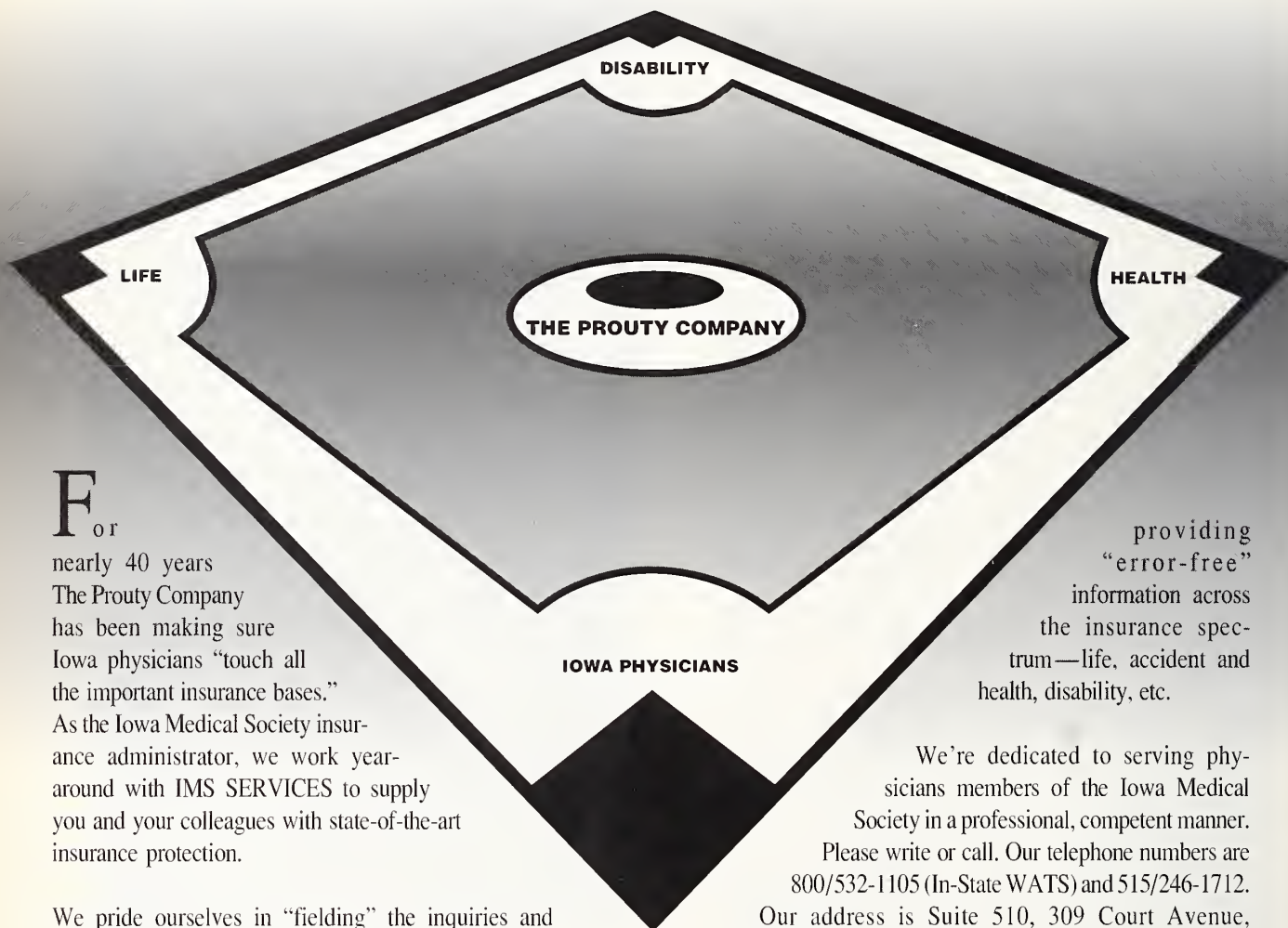
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## About Iowa Physicians

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**Dr. David Ulstad**, Mason City, has been selected Teacher of the Year by physician residents in the St. Joseph Mercy Hospital Family Practice Residency Program. **Dr. Antonio Damasio**, head of the Department of Neurology at the U. of I. College of Medicine, received the William Beaumont Award in Medicine at the annual meeting of the AMA in June. **Dr. Dwight Sattler** has retired after 44 years of practice in Kalona. Dr. Sattler received the M.D. degree at the U. of I. College of Medicine. **Dr. James Selenke** has begun family practice in Hudson. Dr. Selenke received the M.D. degree from the University of Colorado School of Medicine, Denver, Colorado and recently completed a residency at the Family Practice Center in Waterloo. **Dr. Matthew Prihoda** has begun family practice in Washington. Dr. Prihoda received the M.D. degree from the U. of I. College of Medicine and recently completed a residency at Mercy/St. Luke's Hospital in Davenport. **Dr. Candy Shanks** has joined the Mercy Clinic staff in Tipton. Dr. Shanks received the M.D. degree from the U. of I. College of Medicine and recently served a family practice residency at U. of I. Hospitals. **Dr. Herbert Kersten** has retired after practicing medicine in Fort Dodge for 38 years. Dr. Kersten received the M.D. degree at the U. of I. College of Medicine and served a residency at U. of I. Hospitals. Three physicians have joined the Mason City Clinic: **Drs. Linda Floden, Joe Ewing and Thomas Rydz**. Dr. Floden received the M.D. degree from the U. of I. College of Medicine and completed a residency through the U. of I.-Des Moines Internal Medicine Residency Program. Dr. Ewing received the M.D. degree from the U. of I. College of Medicine and served an internal medicine residency at U. of I. Hospitals. Dr. Rydz received the M.D. degree at University of California School of Medicine, Los Angeles, California and completed a general surgery residency at U. of I. Hospitals. **Dr. Marvin Hurd**, Younker Rehabilitation Center, Des Moines, recently served as an oral examiner

from the American Board of Electrodiagnostic Medicine in Chicago. **Dr. Erling Larson, Jr.** Davenport, received the Laureate Award from the American College of Physicians, Iowa Chapter. Dr. Larson was honored as a leading internist in private practice who meets the criteria for teaching, public service and clinical internal medicine. **Dr. Paul Brown**, Maquoketa, has retired after practicing medicine for 43 years. Dr. Brown received the M.D. degree from Washington University School of Medicine, St. Louis, Missouri and served a residency at Fresno County General Hospital, Fresno, California. **Dr. Carol Roge** has been named associate director of the Siouxland Medical Education Foundation in Sioux City. Dr. Roge previously was an emergency physician at St. Luke's Regional Medical Center, Sioux City. **Dr. Burton Adrian** has joined Waterloo Internal Medicine Associates. Dr. Adrian received the M.D. degree from the U. of I. College of Medicine and completed a residency at Fitzsimmons Army Medical Center in Denver, Colorado. **Dr. David Larson** has joined Fairfield Clinic. Dr. Larson received the M.D. degree from the University of Nebraska College of Medicine, Omaha, Nebraska and served his residency at Iowa Lutheran Hospital, Des Moines. **Dr. Greg Morford** has moved to Utah to continue medical practice. Dr. Morford practiced at the Lake View Family Care Center for 3 years. **Dr. Michael Greiner** has joined Medical Arts Clinic in Fairfield. Dr. Greiner received the M.D. degree from the U. of I. College of Medicine and completed a residency at Mercy Hospital and St. Luke's Hospital, Davenport.

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## Deaths

**Dr. Harold Ganzhorn**, 84, longtime Mapleton physician, died July 26 at a Sioux City Hospital. Dr. Ganzhorn, a life member of the Iowa Medical Society, was a family practitioner for 61 years. He received the M.D. degree from the U. of I. College of Medicine.



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The Caring Program for Children has been enrolling Iowa children up to age 19 since December of 1989. It is sponsored by The Caring Foundation, a non-profit, tax-exempt public charity established by Blue Cross and Blue Shield of Iowa.

The Iowa Blues is the major funder of the program, committing \$1.2 million from 1989-91. State government, private businesses, foundations and individuals are supporting the program as well. With more than 700 children enrolled before June 1, the program is off to a healthy start.

The problems of the uninsured population are not new. Every facet of the child advocacy and health care delivery systems recognizes the need for health care for underprivileged children. Whose responsibility is it? While The Caring Program for Children may not be the long-term solution, it is helping many Iowa children.

The Foundation is chaired by Blue Cross and Blue Shield President Robert D. Ray, and is governed by a board that represents community leaders, providers and the executive and legislative branches of state government. Dr. Larry Goetz of Creston serves on the board. An advisory cabinet provides direction on fund-raising and outreach initiatives.

Before the program was formally announced, it received endorsement from the Iowa Medical Society, Iowa Osteopathic Medical Association, Iowa Hospital Association, Iowa Association of Business and Industry and various religious and civic groups. In the spring of 1989, the Iowa General Assembly endorsed the program with a state allocation of match-

ing funds. The presence of state money increased enrollment projections and funding needed from private sources. As of May 1990, almost \$300,000 has been raised or pledged from the business community, foundations, associations and individuals. Major private funders include the Iowa Farm Bureau Federation, Pioneer Hi-Bred and the Mid-Iowa Health Foundation.

The Caring Program provides primary and preventive health care to Iowa children up to age 19 who are ineligible for any government assistance and whose family is at or below 133% of the federal poverty level. Hospital benefits cover a full range of outpatient services, including emergency accident care, emergency medical care, minor non-dental surgery and diagnostic services. Pediatric preventive benefits are also provided.

With The Caring Program fully operational, Iowa hospitals and physicians are getting paid for services once written off as charity care. Many Iowa hospitals have agreed to provide outpatient emergency and medical care at a fraction of the normal charge. Physicians currently are paid based on the Usual, Customary and Reasonable payment schedule through their existing Blue Shield contract.

Enrollment brochures and applications are available at all Blue Cross and Blue Shield of Iowa service centers across the state, the State Maternal and Child Health Clinics and the county Department of Human Services offices. Interested persons may also call the statewide, toll-free number for additional information and applications. That number is 1-800/223-KIDS.

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September 1990

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Iowa Medicine

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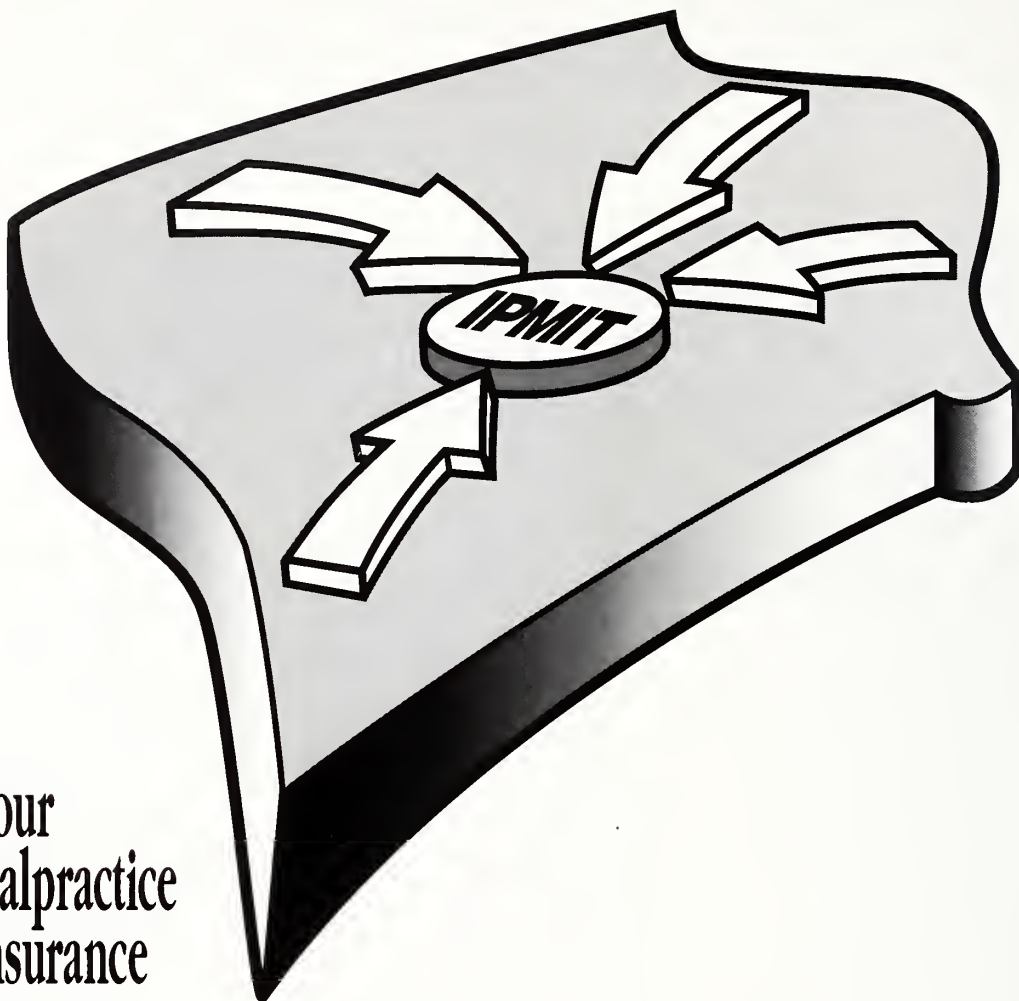
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Volume 80 Number 10

Journal of the Iowa Medical Society

October 1990

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## Departments

- President's Privilege
- Questions and Answers
- Letters to the Editor
- Recent Books
- The Editor Comments
- CME Notebook
- IFMC Case Notes
- Iowa Department of Public Health
- About Iowa Physicians
- Classified Advertising
- Advertising Index
- Physicians' Directory
- In the Public Interest

## Special Article

### 468 Current Concepts in Hip Joint Replacement

*Experts discuss short-term and long-term success of several types of hip joint replacements.*

**Patrick Sullivan, M.D., Scott Kelley, M.D., Richard Johnston, M.D.**

## Scientific Articles

### 475 Cervical Fractures in Ankylosing Spondylitis

*Early recognition of cervical fractures is crucial for patients with rheumatoid arthritis.*

**John Samani, Charles Clark, M.D.**

### 480 Bone Graft Craniofacial Reconstruction

*How surgeons miraculously restored an accident victim's face and skull.*

**John Ganske, M.D., Thomas Carlstrom, M.D.**

### 485 Primary Meningococcal Tenosynovitis

*The author discusses an unusual case.*

**R. Bruce Trimble, M.D.**

## About the Cover

Arjis Youngblade, artist and spouse of past IMS president Dr. Daniel Youngblade, was inspired by "an old memory of my 6 children at Halloween" for her acrylic painting "Trick or Treat" which graces this month's cover. Mrs. Youngblade also works in watercolor and shows her paintings out of her Sioux City home. In March, she will have a showing at the Witter Gallery in Storm Lake.



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## President's Privilege

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Robert Whinery, M.D.



## Is It Time to Change?

**“W**E’VE GOT TO CHANGE” is the message we’re getting these days.

Why?

Everyone says health care costs are too high. There has to be a change, they say. Nothing seems to make much sense any more. The government tells the medical community \$200 is way too much to spend for an intraocular lens. At the same time, it’s okay for the Pentagon to spend \$600 for a military toilet seat.

A murderer gets 10 or 15 years in jail for taking the life of another human being. Yet, a medical liability award can reach an amount equal to several lifetimes of work.

A physician may do a top notch job of treating a patient and have a good outcome, but may get into trouble because of the literary description in the hospital or office medical record. (Don’t forget to dot the “i” and cross the “t”!) If a patient’s outcome is “less than expected,” we are often sued.

Medical care is expensive — but, so are other basic goods and services such as housing and gasoline. What patients get for their money is proportionately a greater value

than what they got even 10 or 15 years ago. No comparative value can be placed on services such as coronary bypass, lens implants, new hips — medical miracles which didn’t even exist until recently.

Our government forgives billions to debtor nations (some of which lend us only lukewarm support in times of crisis), while trying to trim relatively miniscule dollars from health care and social programs.

How have physicians been placed in the unenviable position of apologizing for our health care system? I believe it is time to make the best defense a good offense. Yes, maybe it is time to change — but WE must decide what that change should be.

I guess we’d better get political — it’s the season.

A handwritten signature in dark ink that reads "R. Whinery, M.D." The signature is fluid and cursive.

Robert Whinery, M.D.  
President



# Current Concepts in Hip Joint Replacement

PATRICK SULLIVAN, M.D.  
SCOTT KELLEY, M.D.  
RICHARD JOHNSTON, M.D.  
Des Moines, Iowa

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*The authors present an overview of the 'state of the art' in hip joint replacement. Short and long-term success rates are discussed.*

---

**I**N THE 1960S SIR JOHN CHARNLEY of England opened the modern era of total joint surgery with the introduction of low friction arthroplasty (a cemented total hip). This would become the most predictably successful procedure in orthopedics. The success of this innovation was not guaranteed until he pioneered advances in aseptic technique. Body exhaust (space suits), laminar flow and prophylactic antibiotics all minimize the risk of infection. Even today they are essential in performing modern total joint replacement.

The number of total hips performed in the U.S. at the end of the 1970s was about 100,000 per year. While short-term results were excellent, the 10-year follow-up studies were of concern. Revision rates range from 10-20% and loosening on radiographic examination ranged from 20-50%. Similar prob-

lems were noted in total knee replacements. The question of longevity of cemented total joint replacements arose.

Experiments with cementless prostheses suggested they might provide an alternative fixation method. Cementless techniques allow bone to grow onto or into the metal prosthesis. Two hypotheses were postulated on the basis of the animal studies. First, bony ingrowth would occur in humans; and, since bony ingrowth is a more natural fixation interface, it would last longer.

The senior author in earlier research studies identified and maximized the ideal features of a cemented femoral prosthesis. This led to development of the Iowa femoral stem, a theoretically superior cemented stem. The plastic acetabula were metal-backed to improve fixation. Surgical techniques including debridement and cement pressurization were proven beneficial. Centrifugation of the cement improved the strength characteristics of the cement.

## *The Hip: 3 Approaches*

Current clinical challenges in total hip replacement involve fixation and revisions. The available fixation methods are cementless, cemented, hybrid and hydroxyapatite. Hybrid refers to a total hip with a cemented femoral prosthesis and a cementless acetabular prosthesis. Hydroxyapatite is a coating used on a titanium prosthesis with a chemical makeup similar to bone. The theory is hydroxyapatite will induce a bond between the bone and the prosthesis. Fixation options are only one factor in determining a successful total hip replacement.

---

The authors are joint replacement surgeons practicing in Des Moines.

The success of total hips should be judged in 5-10 year results, not one year. Even with gross errors a total hip might work for a year or 2. Long-term total hip success depends on the correct technology and the surgical skill to implement it. New 5-year follow-up studies of total hips with improved cemented techniques offer a valid comparison with the reported 2-5 year follow-ups of cementless total hips. The cementless results show a 15% incidence of thigh pain and a 21-28% incidence of limp. In the cemented group, pain and limp both approach 1-2%. The radiographic results for cemented prosthesis indicate fewer signs of future problems as compared to the cementless prosthesis. Under closer inspection, it appears most problems in cementless total hips are related to the femoral side. The cementless acetabulum appears as effective as the cemented ones in the short-term. Longevity remains equal for both the cemented and cementless total hip replacements that are successful in the short-term.

### ***Best Combination***

The hybrid approach using a cementless acetabular prosthesis and a cemented femoral prosthesis represents the best combination of current success and future potential. Bony ingrowth has its best theoretical application and most solid experimental evidence on the acetabular side. The hybrid approach involves a cementless acetabulum because its results are comparable to the best results of cemented acetabulum and its future potential seems most promising. The improvement in prosthesis and surgical and cementing techniques have had their greatest effect on the cemented femoral stem. New studies show less than 2% femoral loosening at 5 years. When compared with thigh pain of 15% and limp of greater than 20% in the follow-up of cementless femoral prostheses, it is obvious the cemented femoral stem is superior to a cementless femoral stem at 5-year follow-ups. Theoretical claims of improved longevity are unproven and must be considered equal for both cemented and cementless femoral stems. The hybrid approach incorporates a cemented femoral prosthesis because with new cemented techniques the improved results are tangible. The theoretic

cal advantages of the cementless femoral stem are still questionable.

### ***Excellent Early Results***

Dr. Rudolph Geesink of Holland has shown excellent animal results at 2 years with a hydroxyapatite coated stem. Dr. William Capello, a nationally recognized hip surgeon, is one of the few approved clinical investigators for the hydroxyapatite coated prostheses in this country. In personal communications, Drs. Geesink and Capello relate encouraging clinical results with these prostheses. My personal review of Dr. Capello's x-rays confirm these reports.

The available fixation methods need to be chosen according to the patient's demands. A modern cemented total hip provides an excellent treatment of an elderly person's hip problem. There should be continued investigation of cementless prostheses to improve the short-term results and conclusively determine long-term benefits. The most judicious clinical application of cementless total hips is an option for active and young people. At present the hybrid total hip appears to cover the broadest range of total hip needs. It is an excellent option for people over 50 years of age. In light of our recent study of cemented femoral prostheses, we think it is the best option for many people under the age of 50. The application of hydroxyapatite coated prosthesis awaits the release of formal studies and the release of the prosthesis for general use.

Revision total hip replacement is more complex than primary total hip replacement. Results of cemented revision in one study suggested a 30% failure at 8 years. In response to this, many people began using cementless total hips for revision. Our cemented revision of 5-year follow-up showed a femoral failure of 10%, which is significantly lower than the acetabular failure of 22%. We use a hybrid total hip replacement in several revision settings with good short-term results. Cementless prosthesis has a place in revision surgery but the exact role must be elucidated. Bone loss, a major challenge of revision surgery, isn't perfectly addressed by either cemented or cementless technology. Custom prostheses partially meet this challenge but haven't proven to be a panacea.



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*Am Fam Phys* 1987;36:133-140

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#### Brief Summary

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Contraindication: Known allergy to cephalosporins.

Warnings: CECLOR SHOULD BE ADMINISTERED CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS. PENICILLINS AND CEPHALOSPORINS SHOW PARTIAL CROSS-ALLERGENICITY. POSSIBLE REACTIONS INCLUDE ANAPHYLAXIS.

Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

#### Precautions:

- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of non-susceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

#### Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:

- Hypersensitivity reactions have been reported in about 1.5% of patients and include morbilliform eruptions (1 in 100), pruritus, urticaria, and positive Coombs' tests each occur in less than 1 in 200 patients. Cases of serum-sickness-like reactions have been reported with the use of Ceclor. These are characterized by findings of erythema multiforme, rashes, and other skin manifestations accompanied by arthritis/arthralgia, with or without fever, and differ from classic serum sickness in that there is infrequently associated lymphadenopathy and proteinuria, no circulating immune complexes, and no evidence to date of sequelae of the reaction. While further investigation is ongoing, serum-sickness-like reactions appear to be due to hypersensitivity and more often occur during or following a second (or subsequent) course of therapy with Ceclor. Such reactions have been reported more frequently in children than in adults with an overall occurrence ranging from 1 in 200 (0.5%) in one focused trial to 2 in 8,346 (0.024%) in overall clinical trials (with an incidence in children in clinical trials of 0.055% to 1 in 38,000 (0.003%) in spontaneous event reports. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy; occasionally these reactions have resulted in hospitalization, usually of short duration (median hospitalization = two to three days, based on postmarketing surveillance studies). In those requiring hospitalization, the symptoms have ranged from mild to severe at the time of admission with more of the severe reactions occurring in children. Antihistamines and glucocorticoids appear to enhance resolution of the signs and symptoms. No serious sequelae have been reported.
- Stevens-Johnson syndrome, toxic epidermal necrolysis,

and anaphylaxis have been reported rarely. Anaphylaxis may be more common in patients with a history of penicillin allergy.

- Gastrointestinal (mostly diarrhea): 2.5%
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.
- Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertension, dizziness, and somnolence have been reported.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1% and, rarely, thrombocytopenia and reversible interstitial nephritis.
- Abnormalities in laboratory results of uncertain etiology.
- Slight elevations in hepatic enzymes.
- Transient lymphocytosis, leukopenia, and, rarely, hemolytic anemia and reversible neutropenia.
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<sup>1</sup>Constipation, which is easily managed in most patients, is the most commonly reported side effect of Calan SR.

<sup>†</sup>Price comparison versus 240-mg Calan SR.

Please see next page of this advertisement for references and a brief summary of prescribing information.

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## Consistent with 1988 JNC recommendation...

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Verapamil HCl 180 mg  
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### References:

1. Data on file, G.D. Searle & Co.
2. 1988 Joint National Committee: The 1988 report of the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure. *Arch Intern Med* 1988;148:1023-1038.

### BRIEF SUMMARY

**Contraindications:** Severe LV dysfunction (see *Warnings*), hypotension (systolic pressure < 90 mm Hg) or cardiogenic shock, sick sinus syndrome (if no pacemaker is present), 2nd- or 3rd-degree AV block (if no pacemaker is present), atrial flutter/fibrillation with an accessory bypass tract (eg, WPW or LGL syndromes), hypersensitivity to verapamil.

**Warnings:** Verapamil should be avoided in patients with severe LV dysfunction (eg, ejection fraction < 30%) or moderate to severe symptoms of cardiac failure and in patients with any degree of ventricular dysfunction if they are receiving a beta-blocker. Control milder heart failure with optimum digitalization and/or diuretics before Calan SR is used. Verapamil may occasionally produce hypotension. Elevations of liver enzymes have been reported. Several cases have been demonstrated to be produced by verapamil. Periodic monitoring of liver function in patients on verapamil is prudent. Some patients with paroxysmal and/or chronic atrial flutter/fibrillation and an accessory AV pathway (eg, WPW or LGL syndromes) have developed an increased antegrade conduction across the accessory pathway bypassing the AV node, producing a very rapid ventricular response or ventricular fibrillation after receiving I.V. verapamil (or digitalis). Because of this risk, oral verapamil is contraindicated in such patients. AV block may occur (2nd- and 3rd-degree, 0.8%). Development of marked 1st-degree block or progression to 2nd- or 3rd-degree block requires reduction in dosage or, rarely, discontinuation and institution of appropriate therapy. Sinus bradycardia, 2nd-degree AV block, sinus arrest, pulmonary edema and/or severe hypotension were seen in some critically ill patients with hypertrophic cardiomyopathy who were treated with verapamil.

**Precautions:** Verapamil should be given cautiously to patients with impaired hepatic function (in severe dysfunction use about 30% of the normal dose) or impaired renal function, and patients should be monitored for abnormal prolongation of the PR interval or other signs of overdosage. Verapamil may decrease neuromuscular transmission in patients with Duchenne's muscular dystrophy and may prolong recovery from the neuromuscular blocking agent vecuronium. It may be necessary to decrease verapamil dosage in patients with attenuated neuromuscular transmission. Combined therapy with beta-adrenergic blockers and verapamil may result in additive negative effects on heart rate, atrioventricular conduction and/or cardiac contractility; there have been reports of excessive bradycardia and AV block, including complete heart block. The risks of such combined therapy may outweigh the benefits. The combination should be used only with caution and close monitoring. Decreased metoprolol clearance may occur with combined use. Chronic verapamil treatment can increase serum digoxin levels by 50% to 75% during the first week of therapy, which can result in digitalis toxicity. In patients with hepatic cirrhosis, verapamil may reduce total body clearance and extrarenal clearance of digoxin. The digoxin dose should be reduced when verapamil is given, and the patient carefully monitored. Verapamil will usually have an additive effect in patients receiving blood-pressure-lowering agents. Disopyramide should not be given within 48 hours before or 24 hours after verapamil administration.

Concomitant use of flecainide and verapamil may have additive effects on myocardial contractility, AV conduction, and repolarization. Combined verapamil and quinidine therapy in patients with hypertrophic cardiomyopathy should be avoided, since significant hypotension may result. Concomitant use of lithium and verapamil may result in a lowering of serum lithium levels or increased sensitivity to lithium. Patients receiving both drugs must be monitored carefully. Verapamil may increase carbamazepine concentrations during combined use. Rifampin may reduce verapamil bioavailability. Phenobarbital may increase verapamil clearance. Verapamil may increase serum levels of cyclosporin. Concomitant use of inhalation anesthetics and calcium antagonists needs careful titration to avoid excessive cardiovascular depression. Verapamil may potentiate the activity of neuromuscular blocking agents (curare-like and depolarizing); dosage reduction may be required. Adequate animal carcinogenicity studies have not been performed. One study in rats did not suggest a tumorigenic potential, and verapamil was not mutagenic in the Ames test. Pregnancy Category C. There are no adequate and well-controlled studies in pregnant women. This drug should be used during pregnancy, labor, and delivery only if clearly needed. Verapamil is excreted in breast milk; therefore, nursing should be discontinued during verapamil use.

**Adverse Reactions:** Constipation (7.3%), dizziness (3.3%), nausea (2.7%), hypotension (2.5%), headache (2.2%), edema (1.9%), CHF, pulmonary edema (1.8%), fatigue (1.7%), dyspnea (1.4%), bradycardia: HR < 50/min (1.4%), AV block: total 1°, 2°, 3° (1.2%), 2° and 3° (0.8%), rash (1.2%), flushing (0.6%), elevated liver enzymes. The following reactions, reported in 1.0% or less of patients, occurred under conditions where a causal relationship is uncertain: angina pectoris, atrioventricular dissociation, chest pain, claudication, myocardial infarction, palpitations, purpura (vasculitis), syncope, diarrhea, dry mouth, gastrointestinal distress, gingival hyperplasia, ecchymosis or bruising, cerebrovascular accident, confusion, equilibrium disorders, insomnia, muscle cramps, paresthesia, psychotic symptoms, shakiness, somnolence, arthralgia and rash, exanthema, hair loss, hyperkeratosis, macules, sweating, urticaria, Stevens-Johnson syndrome, erythema multiforme, blurred vision, gynecomastia, increased urination, spotty menstruation, impotence.

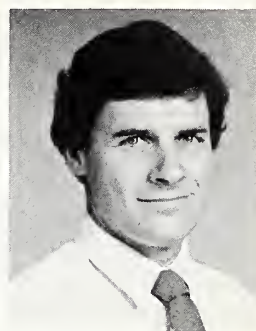
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Mark Wheeler, M.D.



# Orthopedist Shortage Continues

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*The author, a Sioux City orthopedic surgeon and president of the Iowa Orthopaedic Society, discusses the supply of orthopedists and issues of concern to the IOS.*

---

### What are the current concerns of the Iowa Orthopaedic Society (IOS)?

Recurring issues discussed by the IOS are the mandates of regulatory agencies and legislation. The administration of orthopedic practices has become increasingly complicated due to PRO restrictions of lengths of stays, pre-certification, second opinion, etc. Cost control has often been emphasized rather than quality of care. We have attempted to influence the orthopedic standards used by review organizations and will continue to try and do so.

### What is the picture regarding the supply of orthopedic surgeons, including subspecialties?

There are multiple opportunities throughout Iowa for general orthopedists and subspecialists. The Midwest continues to be a difficult recruitment area and Iowa is no exception. Over 50% of all orthopedic residents go on to subspecialized fellowships. Most orthopedic practices in Iowa are looking for orthopedists with subspecialty interests and training in spine, hand, sports, pediatrics or adult reconstruction.

### What are the objectives of the IOS?

The primary goal of the IOS is educational. General meetings are held twice a year in conjunction with an educational program. This allows members to exchange ideas and become acquainted with their colleagues for cross-referral. Ongoing interaction with the orthopedic department at the University of Iowa is of obvious benefit.

Over the last several years, the IOS has made a significant attempt to be more conscious of state legislation and support legislation which benefits the general public.

### What technological and scientific advances have affected your specialty?

Orthopedics has seen an explosion of new techniques and new basic science applications during the past few years. Our management of patients has changed significantly with development of new fixation techniques not only for fractures and trauma but also in spine instrumentation and total joint arthroplasty. Arthroscopy has continued to progress in instrumentation and techniques.

Basic science research has played a vital role in these advances. Biomechanics has influenced not only our surgical techniques but prosthetic designs. Allografting techniques for both bone and ligament are in wide use. Iowa continues to be on the forefront in long-term studies regarding the natural history and long-term treatment of musculoskeletal disease. The management of primary and metastatic bone

*(Continued next page)*



tumors has resulted in marked improvement of survival rates and functional results. The subspecialty areas have developed to handle these burgeoning technical advances.

### What is your specialty doing in the area of athletic injuries?

The standard of orthopedic care is no different for the athlete than for the average patient. The subspecialty of sports medicine has evolved during the last several years with an emphasis on innovative surgical techniques and rehabilitation which has carried over to the general population.

Most orthopedic practices in Iowa have members who specialize in sports injuries. This involves working with the local colleges and high schools on an ongoing basis. However, the primary emphasis is on treatment of injuries rather than prevention. There are a few programs for nonorganized sports. Most of these patients are managed through the general orthopedic practices, again with emphasis on training methods and faster rehabilitation.

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# CARDIOLOGY UPDATE '90



WEDNESDAY, OCTOBER 31, 1990  
8 A.M. TO 4 P.M.  
SIOUX CITY CONVENTION CENTER  
SIOUX CITY, IOWA



## GUEST FACULTY

**FRANK V. AGUIRRE, M.D.**, Assistant Professor of Medicine, St. Louis University Medical Center, Division of Cardiology, St. Louis, MO

**MARC R. PRITZKER, M.D.**, Medical Director, Cardio-Thoracic Transplant Program, Minneapolis Heart Institute, Abbott Northwestern Hospital, Minneapolis, MN

**BRUCE R. CARR, M.D.**, Director, Division of Reproductive Endocrinology, Department of Obstetrics and Gynecology, University of Texas Southwest Medical Center, Dallas, TX

**ANDREW P. SELWYN, M.D.**, Associate Director of Medicine, Director of Cath Lab, Brigham and Woman's Hospital, Harvard University, Boston, MA

**ROBERT S. ELLIOT, M.D.**, Director, the Cardiovascular Institute, Swedish Medical Society, Denver, CO and Director, Preventative and Rehabilitative Cardiology, Heart Lung Center, St. Luke's Hospital, Phoenix, AZ

**JOHN R. WINDLE, M.D.**, Assistant Professor of Medicine, Director of Electro-Physiology, University of Nebraska Medical Center, Omaha, NE

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# CARDIOLOGY UPDATE '90

WEDNESDAY, OCTOBER 31, 1990  
SIOUX CITY CONVENTION CENTER

## MORNING SESSION

8:30 A.M.--REGISTRATION AND  
CONTINENTAL BREAKFAST

8:55 A.M.--WELCOMING REMARKS

9:00 A.M.--"New Understanding of the Cell  
Biology of Atherosclerosis Lesions and Treatment  
of Coronary Syndromes"

Andrew P. Selwyn, M.D.

9:50 A.M.--"Overview on Current Issues in  
Thrombolytic Therapy"

Frank Aguirre, M.D.

10:40 A.M.--BREAK\*

11:10 A.M.-- "Cardiovascular Benefits of  
Estrogen Therapy"

Bruce R. Carr, M.D.

12:00 NOON--LUNCH, First floor, Gallery B  
"Health Care Reimbursement: Medicare in the 1990's"

Congressman Fred Grandy

R-Iowa, 6th District

\*Cardiology-related diagnostic equipment on exhibit--Gallery C.

## COURSE AND PROGRAM OBJECTIVES

This course is targeted to physicians and nurses whose practice includes a higher level of cardiac nursing. Other nurses are welcome to attend if they wish.

Participants at the completion of this program should be able to discuss current concepts and trends in the treatment of cardiovascular disease. Specific topics to be addressed are: Atherogenesis and Clinical Management; Thrombolytic Therapy for Acute Myocardial Infarctions; Estrogen Replacement Therapy and CV Risk: The Continuing Controversy; Cardiac Arrhythmia in Acute/Post MI Patients; End Stage Heart Failure and the Role of Cardiac Transplant; Stress and Sudden Death Syndrome.

**REGISTRATION.** Registration is complete when form and fee have been received in the Continuing Education Office, Marian Health Center, 801 5th Street, Sioux City, Iowa 51101. Pre-registration is encouraged.

**FEE.** The symposium registration fee includes: course materials, breaks, luncheon and continuing education credit. A full refund is available if a cancellation notice is received by the Midwest Heart Institute prior to the October symposium.

**Category I:** As an organization accredited by the Iowa Medical Society for Continuing Medical Education, the Marian Health Center's Medical Staff Continuing Medical Education Program certifies that this CME offering meets the criteria for 6 hours in Category I of the AMA Physician's Recognition Award, provided it is used and completed as designated.

**AAFP:** This program has been reviewed and

## AFTERNOON SESSION

1:00 P.M.--"Antiarrhythmics Overview"  
John R. Windle, M.D.

1:50 P.M.--"Management of End Stage Failure"  
Marc R. Pritzker, M.D.

2:40 P.M.--BREAK\*

3:10 P.M.--"Stress and Sudden Death"  
Robert S. Elliot, M.D.

4:00 P.M.--Summary and Evaluation

4:15 P.M.--Adjournment

## SIOUX CITY FACULTY

### Cardiovascular Associates

John T. Baller, M.D.

Allan S. Manalan, M.D.

William R. Wanner, M.D.

Diane K. Werth, M.D.

Stephen R. Zumbrun, M.D.

### Siouxland Cardiovascular Surgeons, P.C.

Theodore P. Roman, M.D.

Bruce W. Stavens, M.D.

is acceptable for 6 elective hours by the American Academy of Family Physicians.

**Nurses:** Upon completion of the entire program, each nurse will be granted 0.7 CEUs by Marian Health Center. Approved Provider of continuing education by Iowa Board of Nursing #56.

No partial credit will be granted.

**LOCATION.** The Sioux City Convention Center, 4th and Jones Streets, Sioux City, Iowa. The program will be held in the second floor meeting rooms. The telephone number of the Convention Center is 712-279-4800.

**LODGING.** A block of rooms has been reserved for the participants at the Sioux City Hilton Inn, 707 4th Street, (712)277-4101. The room rates for this course are \$53 single and \$63 double occupancy. In order to receive this special rate, be sure to identify yourself with the Midwest Heart Institute when making your reservations.

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### CARDIOLOGY UPDATE 1990 OCTOBER 31, 1990

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# Cervical Fractures in Ankylosing Spondylitis

JOHN SAMANI  
CHARLES CLARK, M.D.  
Iowa City, Iowa

---

***Cervical fractures in patients with ankylosing spondylitis (rheumatoid arthritis of the spine) are discussed. Early recognition is stressed.***

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**B**ETWEEN 30,000 AND 45,000 AMERICANS had ankylosing spondylitis (AS) in 1981.<sup>8</sup> Currently, the estimated incidence in the general population is 1.4%.<sup>5</sup> Several large studies of morbidity and mortality in these patients suggest cervical fracture is an uncommon complication. Wilkinson and Bywaters reported 3 cases of spinal fracture in an analysis of 212 patients with AS followed for as long as 20 years.<sup>13</sup> In a review of 105 patients with AS, Weinstein and Karpman found 13 fractures, 8 patients having severe spinal cord injury.<sup>12</sup> The true incidence of this occurrence, however, cannot be determined since many of these

fractures go unreported, especially when unassociated with neurologic injury. Grisolia described 6 cases admitted to the hospital for various reasons in whom AS was an associated diagnosis.<sup>6</sup> Radiographic survey of the spine disclosed evidence of previous occult fracture in 5 instances.

Surin hypothesized these cases might go undetected due to the decreased association of neurological deficits with flexion injuries of the spine in this patient group.<sup>11</sup> Simmons and Duncan revealed similar findings in a review of 39 patients with severe flexion deformity of the cervical spine, and 36% of their group had definite radiographic evidence of a previous undiagnosed fracture.<sup>10</sup> This group was detected clinically by an episode of sudden and severe increase in deformity. Murray and Persellin reported that in over half their cases, the precipitating trauma was minor, unlikely to cause fracture in a normal spine.<sup>8</sup> Additionally, no history of trauma was obtained in 7% of their cases.

Recently, Detwiler, Loftus, Godersig and Menezes cited the incidence of traumatic cervical spine injury as 3.5 times greater than in the normal population.<sup>5</sup> It is, therefore, well established that cervical fracture with or without neurologic complications may follow minor trauma in people with AS, may occur more frequently in this patient population and is often initially missed. It is also true that delay in diagnosis of these fractures often results in

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John Samani is a student at the U. of I. College of Medicine. Dr. Clark is a professor of orthopedic surgery at U. of I. Hospitals and Clinics.

THE IOWA MEDICAL FOUNDATION HAS DESIGNATED THIS ARTICLE AS THE HENRY ALBERT SCIENTIFIC PRESENTATION FOR OCTOBER 1990



significant morbidity that might otherwise be prevented. Brown and Raycroft described 5 patients who suffered severe neurological compromise following severe cervical spine fractures.<sup>3</sup> All developed delayed complications 2-35 days following their injuries. Four patients had a delay in diagnosis; 3 of these delays resulted in significant morbidity. Therefore, a high index of suspicion and careful evaluation are paramount in patients with AS presenting with neck pain, even with a history of minor trauma.

### ***Patients and Methods***

Two patients with AS and cervical fracture recently treated at U. of I. Hospitals and Clinics are included in this report. Clinical records and radiographs are reviewed and the etiology, level of injury and follow-up assessed.

#### ***Case 1***

A 60-year-old sanitation engineer jumped on a cart being pulled by a small tractor and fell off backwards, onto his neck and shoulders. He reported significant neck and shoulder pain, but was able to rise and ambulate shortly after the incident. He felt slightly dizzy, as if his head "was very loose and going to fall off." The patient was seen locally and given no specific diagnosis or treatment. He returned to work without difficulty, but noted that his head seemingly dropped more forward over the next several months.

At the U. of I. Hospitals and Clinics Neck Clinic 4 months later, the patient denied neck pain, numbness or weakness in the upper or lower extremities. He continued to work but wanted further evaluation of the increasing positional change in his head and neck. The patient said he was told that he has arthritis but not specifically AS. Multiple past x-ray examinations indicated radiographic changes consistent with AS.

Physical examination revealed an elderly gentleman in no acute distress with an obvious kyphotic cervical deformity. He had a very rigid spine and kyphotic deformity of the thoracic spine as well. Cervical spine examination revealed no spinous process tenderness, no paraspinal muscle spasm and range of motion as follows: flexion/extension arc of 20 degrees, rotational arc of 20 degrees and no lateral flexion to either side. Evaluation of the upper extremities revealed strength to be 5/5 in all mo-



**Figure 1.** Lateral cervical spine radiograph obtained on the day of injury showing interspinous process space widening at C6, 7. There is poor visualization of the cervico-thoracic junction.



**Figure 2.** Lateral cervical spine radiograph 2 days after injury. There is increased C6, 7 interspinous process widening. The cervico-thoracic junction is again not visualized.

tor groups bilaterally. Biceps, triceps and brachioradialis reflexes were symmetric and normal bilaterally. Sensation was intact to light touch, sharp/dull and 5-6 mm 2-point discrimination on the radial and ulnar aspects of all digits. Lumbar spine evaluation revealed a forward flexion arc of 60 degrees. Modified Schobers test showed an increase of measured distance from 10-10.5 cm with full flexion. There was 5/5 strength in all lower extremity motor groups bilaterally and patellar and Achilles reflexes were 1+ and symmetric. No clonus was noted.

Original cervical spine radiographs were interpreted as normal. Our review, however, revealed an unstable fracture at the cervico-thoracic junction and multiple radiographic stigmata of AS (Figures 1 and 2). Plain films and midline plain tomography showed evidence of healing at the fracture site (Figures 3 and 4). No treatment was necessary at this time.

## Case 2

A 74-year-old white male with a significant history of AS, hypertension and chronic atrial fibrillation was transferred to U. of I. Hospitals and Clinics for treatment after a fall in a nursing home. The patient complained of moderate left hip pain but denied loss of consciousness, neck pain, numbness or weakness of his extremities. Work-up revealed a subtrochanteric/intertrochanteric fracture of the left femur and the patient underwent open reduction and internal fixation. Following surgery, he began physical therapy and had bilateral weakness of his upper extremities. He denied any weakness prior to his injury. The patient had been told he had AS and multiple radiographs indicated changes consistent with the previous diagnosis.

Physical examination revealed a rigid, kyphotic thoracic spine and no spinous process or paraspinal tenderness. Upper extremity motor evaluation revealed the following: deltoids 4/5 bilaterally, biceps 4/5 bilaterally, triceps 2/5 bilaterally, wrist flexor/extensors 3-4/5 bilaterally and interossei 3-4/5. There was 5/5 strength in all lower extremity groups except quadriceps which were 4/5 bilaterally. Deep tendon reflex exam revealed 2+ bicep reflexes and diminished (0 - 1+) brachioradialis and tricep reflexes. Patellar reflexes were 2+ and no clonus was noted. Sensation was

*(Continued next page)*



Figure 3. Lateral cervical spine radiograph demonstrating significant posterior spinous process widening and evidence of a fracture at the cervico-thoracic junction.



Figure 4. Oblique cervical spine tomogram revealing a fracture at the level of the cervico-thoracic junction. There is extension of the fracture line through the anterior and posterior elements.



grossly intact to light touch and sharp/dull throughout the upper extremity.

Cervical spine radiographs, tomograms and MRI revealed extensive fusion of the spine consistent with AS and a fracture through the superior end plate of C7 extending transversely through the posterior elements (Figures 5 and 6). An associated small epidural hematoma was compressing the spinal cord posteriorly at that level and the patient was fit with a halo vest. His hospital course was complicated by small bowel obstruction, a large left lung abscess and respiratory arrest. He died secondary to these complications shortly thereafter.

## Discussion

Although cervical trauma in AS affects a small number of the patients with spinal injury, the incidence may be underestimated by failure to recognize cervical fracture. Failure to appropriately evaluate spondylitics with neck pain, even after minor trauma, has led to increased morbidity in these patients. Rogers emphasized the severe nature of these fractures, reporting severe neurologic deficits in 57% of the cases and a mortality rate of 35%, twice that seen with fractures in normal spines.<sup>9</sup> The precipitating trauma was of a minor nature in half the cases, unlikely to result in fracture of a normal spine; in 7% no history of trauma was obtained. For this reason and because neck pain is a common complaint of patients with AS, detection of these fractures is often delayed or overlooked, usually to the detriment of the patient.

Cervical ankylosis is known to develop in 75% of patients who have had AS 16 years or longer.<sup>2, 13</sup> These spines are fragile, osteopenic and not well supported biomechanically by the paravertebral calcifications present. In normal spines, a significant amount of preload is absorbed as a result of the spinal ligaments, discs and facet joints. The rigid and brittle spondylitic spine with its exaggerated curves is subject to high bending from relatively small forces. Thus, much smaller forces are necessary to fracture an ankylosed spine than those required to fracture a normal spine.

There are 2 recognized patterns of cervical spine fractures in AS (hyperextension and flexion), and the ability to distinguish the mechanism of injury, in part, determines treatment and predicts outcome. Most authors point out that, unlike an ordinary spinal fracture, the



Figure 5. Cervical spine tomogram demonstrating anterior soft tissue swelling (arrows without tails) and fracture through the anterior and posterior elements of C7 (arrow with tail).

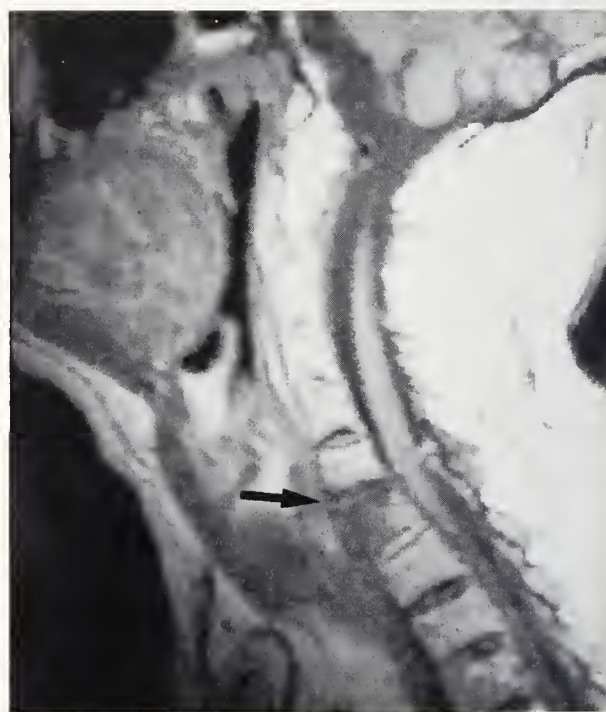


Figure 6. Sagittal magnetic resonance image revealing destruction of the C7 vertebra with anterior spinal cord compression.

ankylosed spine breaks transversely like a solid long bone as a result of a bending force.<sup>2, 5, 8</sup> The hyperextension type of fracture has more potential to cause spinal cord damage as it is generally unstable and most often occurs through what was formerly an intervertebral space.<sup>4, 8, 11</sup> Mortality is quite high in this type of fracture because of neural damage. With understanding and execution of management principles, the outcome in these patients can be favorable. Unfortunately, needless delay in recognition of cervical fracture in patients with AS can lead to increased morbidity and mortality. Factors making initial diagnosis difficult include: distortion of normal anatomy, predominant location of fractures in the lower cervical spine, lack of obvious displacement, common complaint of neck pain in patients with AS and the often trivial nature of injury.<sup>4, 7, 11</sup>

Thorough assessment of patients with AS and cervical injury should be undertaken and a history of even minor trauma with resultant neck pain should raise suspicion. Cervical radiographs should be obtained and if questionable, tomography and/or CT may be necessary

to establish the diagnosis.<sup>4</sup> Because patients and many physicians remain unaware of the increased susceptibility for cervical spine fracture in spondylitics, there is a tendency to ignore minor spinal trauma or even persistent back pain. Both patient and physician must be alert to the possibility of spinal fracture under these circumstances.

The radiographic picture of paravertebral ossification, while initially appearing to be a stabilizing factor, in fact provides little support for the osteopenic spine. Therefore, a patient with AS and a history of minor spinal trauma should be managed as a spinal fracture with potentially serious neurologic complications until this diagnosis has been excluded. With a more thorough understanding of the disease by both patients and physicians, spinal fractures will likely be associated with lower morbidity and mortality.

### References

References noted in this article are available from the authors or the editors of *IOWA MEDICINE*.

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# Bone Graft Craniofacial Reconstruction

JOHN GANSKE, M.D.

THOMAS CARLSTROM, M.D.

Des Moines, Iowa

---

*Craniofacial reconstruction can provide significant functional, social and psychological benefits.*

---

**T**HE ORIGIN OF CRANIOFACIAL SURGERY can be traced back to 1890, when Lane performed the first craniotomy.<sup>1</sup> The numerous battle casualties of the 2 World Wars stimulated development of techniques for replacing missing bone and soft tissue. In the mid 1960s, Paul Tessier showed most skeletal deformities of the face and skull can be significantly improved by surgery.<sup>2</sup> Techniques developed for treatment of traumatic injuries have been applied to congenital defects, and vice versa.

## Case Report

In December, 1981, a 27-year-old Des Moines man was in a motor vehicle accident in which the metal pole of a bridge railing struck the left side of his head, crushing his left orbit, forehead and frontal lobe. The patient lost his left eye and part of his frontal lobe, but eventually recovered speech and gait. His right arm was paralyzed.

---

Dr. Ganske is a plastic surgeon in Des Moines. Dr. Carlstrom is a neurosurgeon and also practices in Des Moines.

He was left with a boney absence of the left forehead, orbit, zygoma, entire left parietal and part of the left occipital. Only skin and dura covered his left brain (Figure 1). X-ray shows boney defect (Figure 2).

Because the patient had undergone a ventriculoperitoneal shunt, the calvarial loss on the left side was all the more remarkable. In addition, the extremely concave surface created technical difficulties in covering the dura with any type of calvarial replacement.



**Figure 1. Preoperative facial and skull defects, 5 years post motorcycle accident.**



**Figure 2.** Skull x-ray showing CSF shunt and bony defect.

Accordingly, prior to the cranial reconstruction, the ventriculoperitoneal shunt was revised to place a valve with an on-off mechanism. The shunt was then turned off and over the next 24 hours the brain reexpanded, creating a more normal shape for recreation of the calvarium. The shunt was left off during the initial postoperative period without clinical consequence, and has remained off since the time of the reconstruction.

In January, 1986, the patient underwent a cranioplasty procedure utilizing autogenous bone to reconstruct his face and skull. Skin flaps were elevated off the dura, showing the 26 cm × 13 cm bony defect (Figure 3). A large, full thickness bone graft was taken from the patient's right skull. This was split and the inner table was turned to the donor site. The outer table was molded and used for frontal bony reconstruction. A large bone graft was taken from the left iliac wing, split and used for the parietal area. Multiple ribs were harvested, split, tailored and used to reconstruct the lateral orbit, zygoma and residual bony defects. The bone grafts were wired in place and the skin flap replaced (Figure 4). There were no postoperative complications.

*(Continued next page)*



**Figure 3.** Coronal flap reflected to left with residual temporalis muscle pulled inferiorly and dura exposed with bony margins dissected.



**Figure 4.** Cranial, iliac and rib grafts wired into place.



Four years later the patient's cranioplasty is healed and solid; he has shown continued slow mental and neurological improvement (Figure 5).

## Discussion

Various materials have been used for calvarial replacement. Plastic or metal are readily available and can even be prefabricated using 3-D CT scanning techniques. Long-term problems with these materials are infection with loss of the prosthesis and instability of fixation at the margins.

Autogenous bone grafting techniques require additional surgical sites, more surgical time and facility for working with bone. However, the bone grafts readily incorporate and pick up a blood supply. Subsequent minor overlying skin trauma or infections are then less likely to cause loss of the reconstruction.

Several factors influence bone graft survival.<sup>3</sup> Whenever possible, calvarial bone should be used as calvarial grafts because they have been found to maintain strength better than enchondral grafts. Cancellous grafts pick up a blood supply (within hours by inosculation) faster than cortical grafts, but cortical grafts maintain an initial strength necessary for bridging reconstruction.

Accordingly, all this patient's grafts were split, providing one surface (cancellous) for rapid revascularization and one surface (cortical) for initial strength. Wherever possible, the cancellous portion was positioned adjacent to the bony edges of the defect as creeping substitution occurs more rapidly with cancellous to cortical opposition rather than cortical to cortical opposition. Rigid fixation improves graft healing; it is also important to obtain as much surface contact between the recipient bony margins and bone grafts as possible.

## Summary

Craniofacial reconstruction provides functional benefits such as allowing unimpeded brain growth in children or brain protection in adults like our patient. There are also significant psychological and social benefits. Before surgery, this patient refused to be seen in public because of his bizarre appearance; he now functions better. As William Mayo said, "It is the divine right of man to look human."

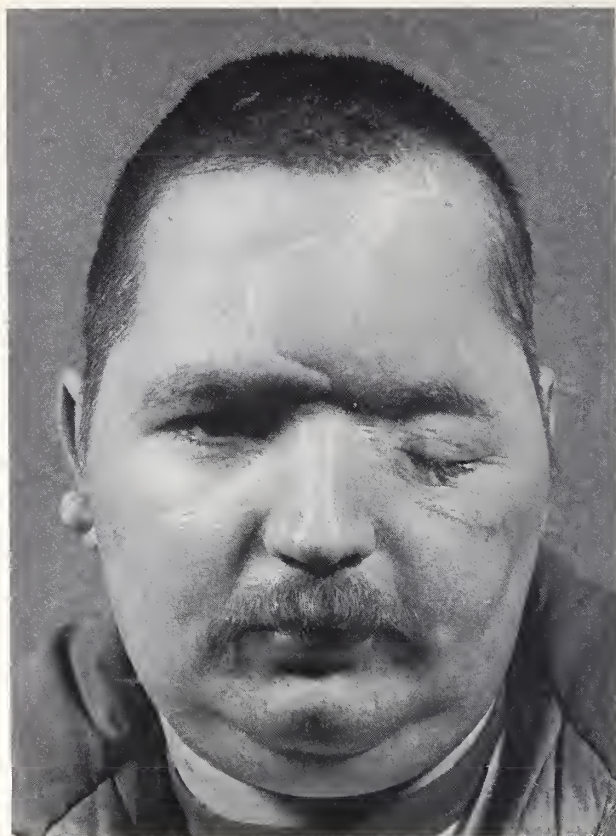


Figure 5. Postoperative healed flap and bone grafts.

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## A Search For Unusual Cases

Medical cases are varied and challenging. All are not textbook in character. Some are exciting, some unbelievable and some just interesting. The editors of *IOWA MEDICINE* believe our readers can recall some interesting cases encountered in practice. We do not seek long case reports, nor must they be scientific in the purest sense. Please share your experiences with us and our readers! Send your curious cases to *IOWA MEDICINE*, 1001 Grand Avenue, West Des Moines, IA 50265.



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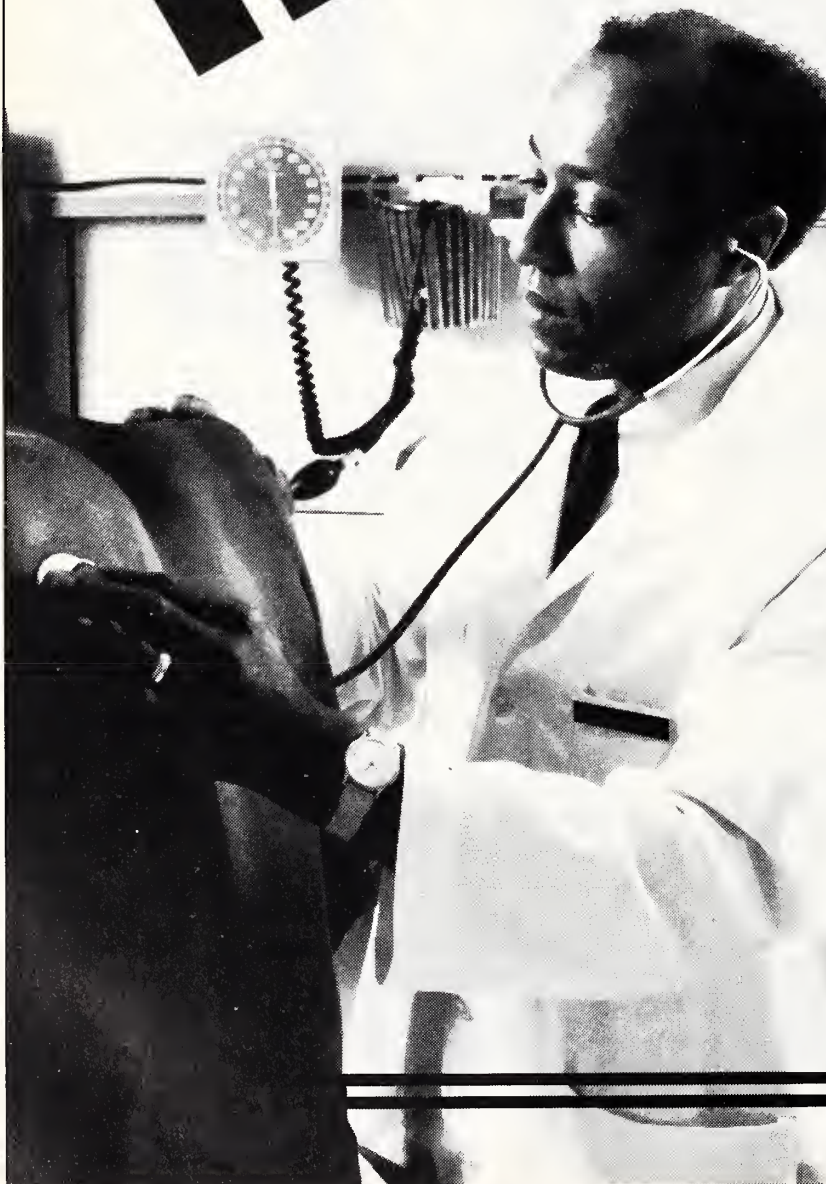
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# Primary Meningococcal Tenosynovitis

R. BRUCE TRIMBLE, M.D.

Mason City, Iowa

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***A case of meningococcal tenosynovitis is described and the literature is reviewed.***

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ARTHRITIS HAS BEEN RECOGNIZED as a complication of "cerebrospinal fever" since the earliest description of that process around 1810.<sup>1</sup> *N. meningitidis* was first isolated from an involved joint in 1897.<sup>1</sup> Meningococcal arthritis occurring without meningitis or fulminant meningococcemia was until recently thought to be rare.<sup>2-4</sup> This report describes a case of primary meningococcal tenosynovitis.

## Case Report

A 64-year-old man was admitted to the North Iowa Medical Center, Mason City, Iowa, on May 31, 1989. He had driven a small sports car non-stop from San Francisco, California, to Clear Lake, Iowa. Driving with the top down across Nebraska, he developed nasal congestion with a small amount of bloody nasal discharge. He noticed hand swelling one day after arriving in Clear Lake. This persisted and he sought medical attention 2 days later.

The patient had a temperature of 103°F. His neck was supple, there were no skin le-

sions and the examination was otherwise unremarkable except for dorsal swelling of both hands and wrists.

The initial WBC count was 9,900 with 77% segmented forms, 11% bands, 8% lymphocytes and 4% monocytes. Three blood cultures and a urine culture were negative. A small amount of purulent material was aspirated from the dorsum of the right wrist. No organisms were seen on gram stain, but 2 days later a gram-negative diplococcus was obtained from culture. Five days later this was identified as *N. meningitidis*.

Treatment was begun empirically with intravenous ampicillin and gentamicin. When a gram-negative diplococcus was reported, treatment was changed to ceftriaxone, for a presumptive diagnosis of *N. gonorrhoeae*, sensitivity unknown. After the organism was identified, he was given 12 million units of penicillin daily for 4 days by continuous infusion, and then oral ampicillin for 4 days. In all, he received antibiotics for 13 days.

He rapidly felt better and his temperature fell over the first 24 hours of treatment. Dorsal swelling steadily decreased in the right hand but increased for the first few days in the left hand, which also developed diffuse palmar swelling. Like the findings on admission, this pattern of involvement was tenosynovial rather than articular. During the last 7 days of his hospital stay, he was given 500 mg naproxen b.i.d. and both hands were treated with warm soaks followed by gentle range of motion exercises. Both hands were still mildly swollen at the time of discharge, but were not tender and had regained nearly normal motion.

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Dr. Trimble is a rheumatologist with Park Clinic in Mason City.

(Continued next page)



Before discharge, the patient received 600 mg of rifampin every 12 hours for 4 doses to eliminate possible nasopharyngeal meningococcal carriage. I speculate his infection may have begun as asymptomatic nasopharyngeal carriage, disseminated as a result of mucosal damage from dry and dusty air, and localized to his hands because of the prolonged grasping of his steering wheel.

## Comment

Meningococcal arthritis has been categorized into several types. Tenosynovitis is less common, but can occur in all of these settings.

Arthritis may be a manifestation of fulminant meningococcal infection. In the largest reported series of such patients, 5.5% had arthritis.<sup>5</sup> The authors speculate this figure may understate the true incidence because these very ill patients may not complain of joint pain and because detailed joint examinations probably are not routinely done. Arthritis in this setting may be septic or sterile, the sterile form frequently developing when patients otherwise are improving.<sup>1, 4, 6</sup> This arthritis is immune-complex mediated and thought to be similar to the reactive arthritis sometimes associated with other infections.<sup>6</sup>

Sterile arthritis also occurs as part of "chronic meningococcemia."<sup>1</sup> The fever, rash, and arthritis/arthralgia/tenosynovitis of this entity may exactly mimic the "arthritis-dermatitis syndrome" of disseminated gonococcal infection.<sup>1, 7, 8</sup> *N. meningitidis*, in fact, is an increasingly frequent cause of this clinical picture. Holmes and his group recently reported that meningococcal isolates rose from 17% of cases in 1970-74 to 73% in 1980-87, the remainder being caused by *N. gonorrhoeae*.<sup>7</sup> Clinical differentiation can be impossible but there may be clues. Upper respiratory tract infection frequently precedes meningococcal arthritis, although gonococcal pharyngitis does occur.<sup>1, 2, 9</sup> Conversely, genitourinary tract infection suggests a gonococcal etiology, but rarely can be caused by meningococci.<sup>4</sup> Patients with meningococcal infection tend to have higher peripheral WBC counts and more skin lesions.<sup>7</sup> Precise diagnosis, however, depends on culture results.

Primary purulent meningococcal arthritis also has been described and appears to include patients with and without skin lesions.<sup>1-3</sup> Differentiation from "chronic meningococ-

cemia," where septic arthritis occasionally occurs in addition to sterile forms, may therefore be difficult. The 2 entities are probably on a continuum analogous to the clinical spectrum of gonococcal arthritis.<sup>9</sup>

There is no standard treatment regimen for meningococcal arthritis. The organism is sensitive to a number of antibiotics, and with adequate treatment the joints usually recover completely.<sup>1, 2, 3, 10</sup>

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## Letters to the Editor

### Thoughtful Columnists

Dear Editor:

I just read Dr. Albert's editorial in the August issue of *IOWA MEDICINE* and felt the distinct urge to let you know how much I enjoyed and appreciated the thoughtful discourse. Dr. Caplan's ruminations on the following page are equally wonderful, I thought. — *F. S. Katzmann, M.D., Des Moines.*

### Alcoholism and Semi-Truck Drivers

Dear Editor:

I greatly enjoyed your issue highlighting substance abuse, one of the most frequent problems encountered in a clinical practice.

Unfortunately, our state does not provide a mechanism for the reporting of alcoholism, even at its most flagrant stages, among operators of semi-trucks, our most common carrier. While the alcoholic is in the denial phase, early identification frequently does no good. — *Steven F. Gordon, M.D., Sioux City.*

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### Recent Books

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Stringer, Christopher J. and Virginia Law Burns, *First Frontiers*, Enterprise Press, Laingsburg, Michigan. This is not a new publication. The co-authors sent it along with the book noted in the proceeding comments (*William Beaumont: Frontier Doctor*). This autobiographic story by Christopher J. Stringer, thoracic surgeon, has an Iowa flavor as he received his medical education at the University of Iowa. He relates to Doctors N.A. Alsock and Howard Beye as well as experiences at Cherokee Hospital. He continued his training in the surgical treatment of pulmonary tuberculosis in the 1930s and 1940s. Ultimately he became a renowned thoracic surgeon in Michigan and had a devoted interest in the American Lung Association. The story of his life reflects the

interesting history of the care of tuberculosis from the 1930s to the present.

Hart, Charles, *Without Reason*, 1989, Harper and Row, New York, New York, \$18.95. This is a warm and revealing account of the author's experiences as a brother and later a father of an autistic child. The complexities of the family experiences, attitudes and ways of coping are revealed in a well-written account. This book is highly recommended to physicians who may encounter an autistic patient; also to any family who must cope with such a disabled person. The author provides his personal insight and feelings in relationship to the once meager knowledge by the medical profession on autism.

Cutler, Winnifred B., 1990, *Hysterectomy: Before and After*, Perennial Library/Harper & Row, New York, New York, paperback \$10.95. This book was published as a hardcover in 1988. As the subtitle states it serves as "a comprehensive guide to preventing, preparing for and maximizing health after hysterectomy — with essential information on menopause." A reproductive biologist, the author argues the majority of women cannot rely solely on their physician's advice before and after hysterectomy. It is claimed her studies have data not known by most doctors. Though controversial in numerous aspects, it provides the physician an insight of another viewpoint of hysterectomy.

Kaplan, Edna, 1990, *Practice Made Perfect: The Physician's Guide to Communication and Marketing*, Barrington Press, Boston. The author, a public relations practitioner and the wife of a physician, has written a guide which has much to offer. The major theme is communication.

Pantano, James A., 1990, *Living with Angina*, Harper and Row, New York, New York, \$18.95. Unfortunately numerous physicians are poor communicators. This book, written for patients who have cardiac problems, will help bridge the communication gap. The author, a practicing cardiologist, appears to grasp that problem of telling the patient the "what" and "why" of the mysteries of cardiac symptoms, diagnostic procedures, medical and surgical treatment and follow-up. This book should be

(Continued next page)



a valuable guide to the patient with coronary artery disease.

Carroll, David L., 1990, *When Your Loved One Has Alzheimer's*, Harper and Row, New York, New York, paperback \$8.95. The physical and emotional burden carried by the loved ones of a person with Alzheimer's is enormous. This caregiver's guide can be most helpful. The guide provides common sense practical advice for the day-to-day management of these patients. Physicians who provide care for Alzheimer's would do well to read this book as well as recommend it to caregivers.

Williams, Wendy, 1990, *The Power Within: True Stories of Exceptional Patients Who Fought Back with Hope*, Harper and Row, New York, New York, \$19.95. The 10 stories in this book chronicle the experiences of a diverse segment of society who encountered the diagnosis of cancer. They tell their thoughts and expectations; their experiences and their attempts to conquer the plight visited upon them. Hope was the keystone of the life they endured. Some defied traditional medical care; some baffled their physicians. Patients with cancer may well derive a degree of hope and less feeling of despair by reading this book. No physician should ridicule the narration presented by the subjects of this anthology, as each cancer victim should be encouraged to retain hope with a positive attitude.

A group of books recently available to lay persons are listed below for information to physicians as to what their patients may be reading.

Virtue, Doreen L., 1990, *The Yo-Yo Syndrome Diet*, Harper Paperbacks, New York, New York, \$4.95.

Bryan, Patty, 1990, *Food Values: Fiber; Food Values: Sodium; Food Values: Calories*, Harper and Row, New York, New York, \$4.95 each. These 3 pocket guides are part of a "Food Value Series."

Morra, Marion and Eve Potts, 1990, *Triumph: Getting Back To Normal When You Have Cancer*, Avon Books, New York, New York, \$9.95.

Stoff, J. A. and C. R. Pellegrino, 1990, *Chronic Fatigue Syndrome: The Hidden Epidemic*, Harper and Row, New York, New York, \$8.95.

Hogue, K., C. Jensen and K. M. Wiljanen, 1990, *The Complete Guide to Health Insurance*, Avon Books, New York, New York, \$4.95.

Dreher, Henry, 1990, *Your Defense Against Cancer*, Harper and Row, New York, New York, \$9.95.

Ezrin, Calvin and Robert Kowalski, 1990, *The Endocrine Control Diet*, Harper and Row, New York, New York, \$18.95. This book recognizes and explains hyperinsulinism.

Vartabedian, R. E. and K. Matthews, 1990, *Nutripoints: The Breakthrough Point System for Optional Nutrition*, Harper and Row, New York, New York, \$19.95. From the Cooper Aerobics Wellness Center, this book assigns a number indicating the "nutrient density" of over 3,000 foods with emphasis on the value of fruits, vegetables and legumes.

Dachman, Kenneth and John Lyons, 1990, *You Can Relieve Pain*, Harper and Row, New York, New York, \$18.95. This book is based on a concept of "guided images" to divert the sensation of pain by mind-over-matter technique.

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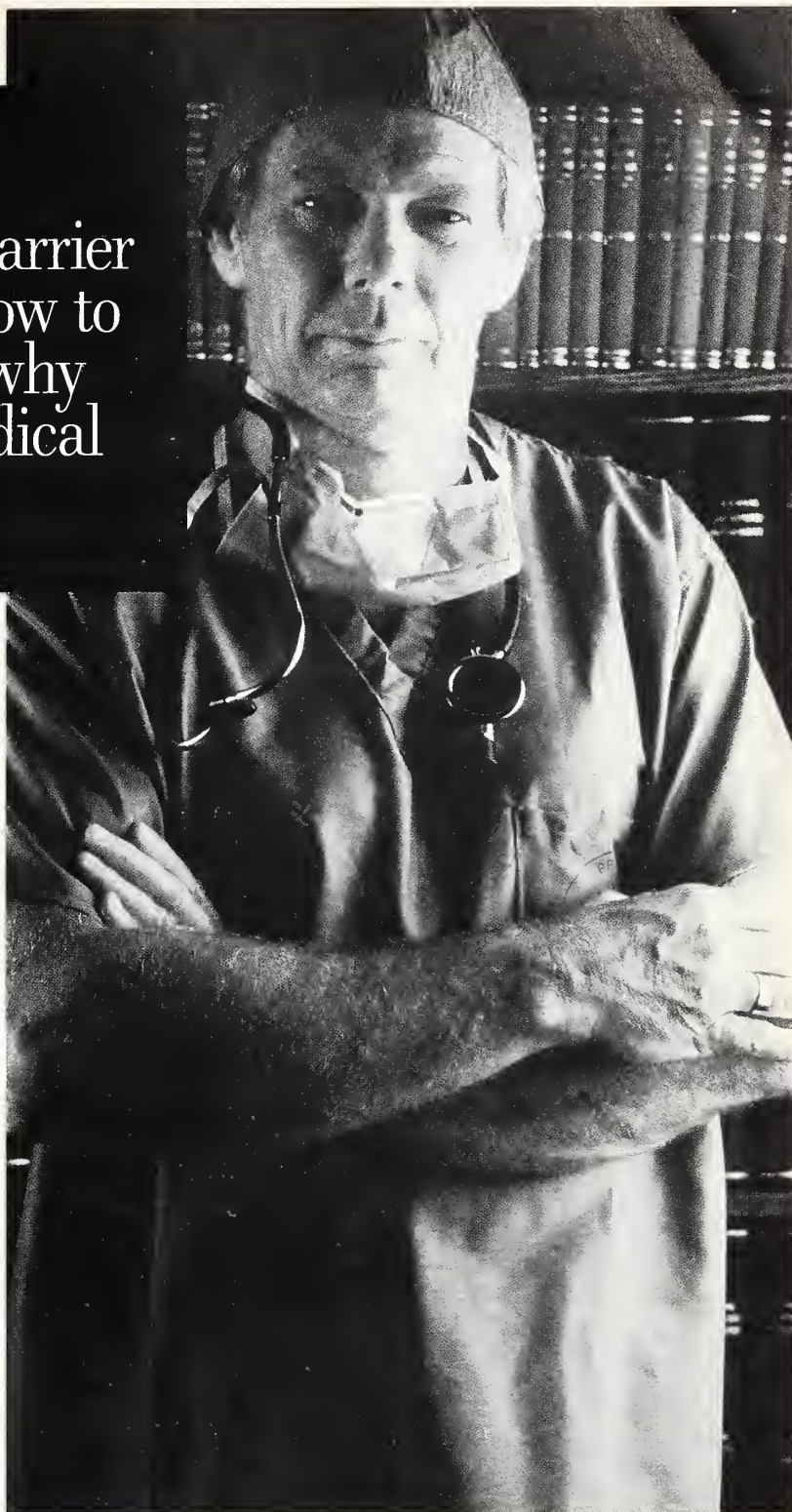
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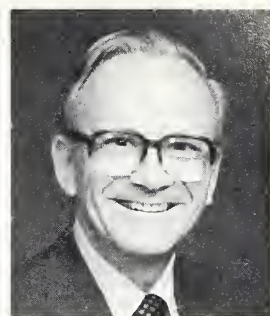
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Marion E. Alberts, M.D.



# Autumn: Nature's One Last Fling

**I**T CAN BE DIFFICULT TO DECIDE which season is the most beautiful and exciting. Spring, of course, awakens us from the darkness of winter. The colors of spring have a sparkle that alerts us to a new awakening. Summer is a busy time with outdoor activities and respite from labors, a time for vacations and renewal of family activities. Autumn is a time of diverse feelings. Bryant (1794-1878) opined "The melancholy days are come, the saddest of the year, of wailing winds and naked woods, and meadows brown and sear." Fortunately, autumn is not such a sad time of the year. Shelley (1792-1822) expressed a more optimistic viewpoint: "There is a harmony in autumn, and a luster in the sky, which thro' the summer is not seen or heard — as if it could not be, as if it had not been!"

All creation takes on a new dress in autumn. The fruits of trees and plants are harvested. The gold of the corn blends beautifully with the russet of the apples, the various colors of squash and pumpkins and the greens of the last blush of lawns before the dormant slumber of winter. Our personal activities as well take on brighter colors — the grandeur of football games, the bright hues of fall wardrobes and the re-

newed vigor of our offspring returning to schools and colleges. It is as though nature is having "one last fling" before winter commences. It is another season for renewal as is the season of spring. The fun of summer becomes a memory and we must address the responsibilities of life. Our activities become more businesslike.

In our profession there is the renewal of medical staff activities, programs of our medical organizations take on a new vigor and we attend to the realities of the business of life. As Shelley observed "there is a harmony" in the air. We become renewed in our efforts to provide the best medical care to a higher proportion of the population than elsewhere in the world. We are committed to that responsibility. The "luster in the sky" of autumn will be not only the colors of the harvest season but should reflect as well the true colors of the proud profession of which we are honored to be a participant.

Let us not adopt the attitude of Bryant and equate our efforts with his concept that autumn is a melancholy time. Sadness, as expressed by him, should be overshadowed by a joy of accomplishment for the benefit of our fellow citizens. — M.E.A.



Richard M. Caplan, M.D.



# Pre-Meds: Take Acting?

**S**UPPOSE A PRE-MED STUDENT asked you to suggest courses that would best prepare her or him for the practice of medicine — not courses to enhance admission prospects or help pass pre-clinical courses easily, but those that might increase one's effectiveness with patients. First, notice how different those purposes are. Might the appropriate preparatory courses be correspondingly different?

Do you believe, along with me, that the practice of modern medicine is not a science, although based unquestionably on scientific principles and knowledge? If so, you will grant attributes beyond scientific problem-solving that would be useful (or crucial) for effectiveness, such as integrity, sensitivity, altruism, imagination, salesmanship, management skills, energy, optimism. Can one acquire such vital attributes by taking college courses? Does one obtain integrity, for example, by passing an ethics course? In general, no, although one might move in the "right" direction by learning what others consider the benefits, risks and justifications for behavioral choices. Does one gain energy by passing an elective in gymnastics? Hardly, even though other virtues could be imagined.

There are likely inborn (or very early learned) characteristics that auger well for successful selling, managing or relating to others. But even so, you'd probably agree that appropriate course work and/or practical experience could lead to some, if not great, improvement.

Focus now on the aspect of sensitivity that involves knowing oneself, "reading people," being a careful listener and deftly interpreting tone of voice and signals of "body language." Would such vital skills most likely be fostered by a course in calculus, introductory histology, physical chemistry, sociology of crime, music appreciation, debate or acting? In a literature course, one might read *Macbeth* and through study understand Shakespeare's skill in choosing words that imply actions and emotions, since he is lean on stage directions. But the actor must astutely read the nuances of fellow actors and instantly modulate his own delivery. No two performances in live theatre are identical, even though the words are. That requires close listening, speedy interpretation and adjustment of one's own bodily and vocal responses. Is one likely to improve these skills during a semester, or through stage performance? Indeed. Are such skills transferrable to the clinic or other life situations? I argue yes, not as scientifically proven, but almost as axiomatic as the Euclidean notion that 3 points determine a plane. Or consider, does an effective debater listen closely and respond appropriately? (Recall Senator Bentsen's response to Senator Quayle: "I knew President Kennedy, Senator, and you are no John Kennedy.")

Students might act or debate without formal course enrollment while in high school or college and maybe continue participating throughout life. And effective skills as a listener are surely acquired by many who never participate in theatrical work. But if a pre-med student asks you for a suggestion, how about "acting."

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Dr. Caplan is Associate Dean for Continuing Medical Education at the University of Iowa College of Medicine.

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# Long-Term Care Residents And MI/MR/RC Screenings

**A**S MANDATED BY THE HEALTH CARE Financing Administration (HCFA), all long-term care facilities participating in state Medicaid programs must have their residents screened to determine the presence of mental illness (MI), mental retardation (MR) or a related condition (RC). This is true whether the resident qualifies for Medicaid reimbursement or pays for the care through private insurance or other means.

Level I screens determine the presence of MI/MR/RC. Level II evaluations determine the patient's functional status and active treatment needs.

Following is a case study that emphasizes the need for up-to-date and thorough documentation in the medical record before long-term care residents receive level I screenings.

## Case Study

An annual MI/MR/RC screen is performed on an 87-year-old female residing in an intermediate care facility (ICF). The screen revealed she:

- was using doxepin 50 mg at bedtime to aid sleep
- was alert and oriented
- had no maladaptive behaviors and
- had no documented history of mental illness or mental retardation

In the medical record, the attending physician listed the diagnoses as hypertension and diabetes.

Based on this information, is a level II evaluation needed?

## Comments

Yes. Because neither a justifiable neurological disorder nor a non-major mental illness had been documented by the physician while

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*'Level I screens determine the presence of MI/MR/RC. The case study emphasizes the need for up-to-date and thorough documentation before long-term care residents receive level I screenings.'*

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the resident was using a major psychotropic drug, a level II evaluation is required.

A level II evaluation, however, is not warranted for organic illnesses or non-major psychiatric diagnoses. In fact, in this particular situation, during a second review, the attending physician supplied the following information: 1) a diagnosis of situational depression and 2) doxepin had been given to aid in sleeping related to the resident's situational depression.

If, prior to the level I screen, the medical record had contained a current, accurate diagnosis confirming that the patient's symptoms were not attributed to a major psychiatric diagnosis, a level II evaluation would not have been needed.

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This column is provided by The Iowa Foundation for Medical Care (IFMC) to discuss review requirements and procedures. This month's author is Robert Bender, M.D., IFMC long-term care committee chairman.



## WIC's New Rebate Policy Saves Money

**T**HERE WILL BE A SIGNIFICANT POLICY change in Iowa's supplemental food program for Women, Infants and Children (WIC) beginning October 1, 1990. This change will save the state \$3,600,000 a year.

Instead of providing every brand of iron-fortified infant formula, WIC will provide 2 brands of milk-base and 2 brands of soy-base formula.

The milk-base brands are Mead Johnson's Enfamil with Iron and Ross Laboratories' Similac with Iron. The soy-base are Mead's ProSobee and Ross' Isomil. WIC participants will not be allowed to purchase Wyeth's SMA or Nursoy, Carnation's Good Start or Gerber formulas. The program will continue to provide any of the special formulas designed for specific medical conditions when recommended by a physician.

This change in policy is being implemented to reduce costs and enable the program to serve more participants. The Congressional Research Service cited WIC as the second most effective effort in reducing infant mortality. (The most effective effort is, of course, prenatal care.) Unlike Medicaid, AFDC, and Food Stamps, the federally funded WIC is not an entitlement program. The number of participants served is limited by the overall amount of funds appropriated and the cost of the monthly food package for each participant. Although it has consistently been evaluated and acclaimed as one of the most cost-effective federal programs, WIC only serves about 60% of the eligible population. The savings generated in Iowa through the new policy will enable

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*'The Congressional Research Service cited WIC as the second most effective effort in reducing infant mortality.'*

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WIC to serve an additional 8,500 participants per month (45,000 instead of 36,500).

In most states, including Iowa, WIC Programs provide participants with WIC food checks which they take to a grocery store and use to purchase milk, juice, cereal or formula. The WIC Program pays the store's normal retail price. However, for purchases of infant formula the program receives a rebate directly from the manufacturer for each can purchased.

### *History of Rebate Policy*

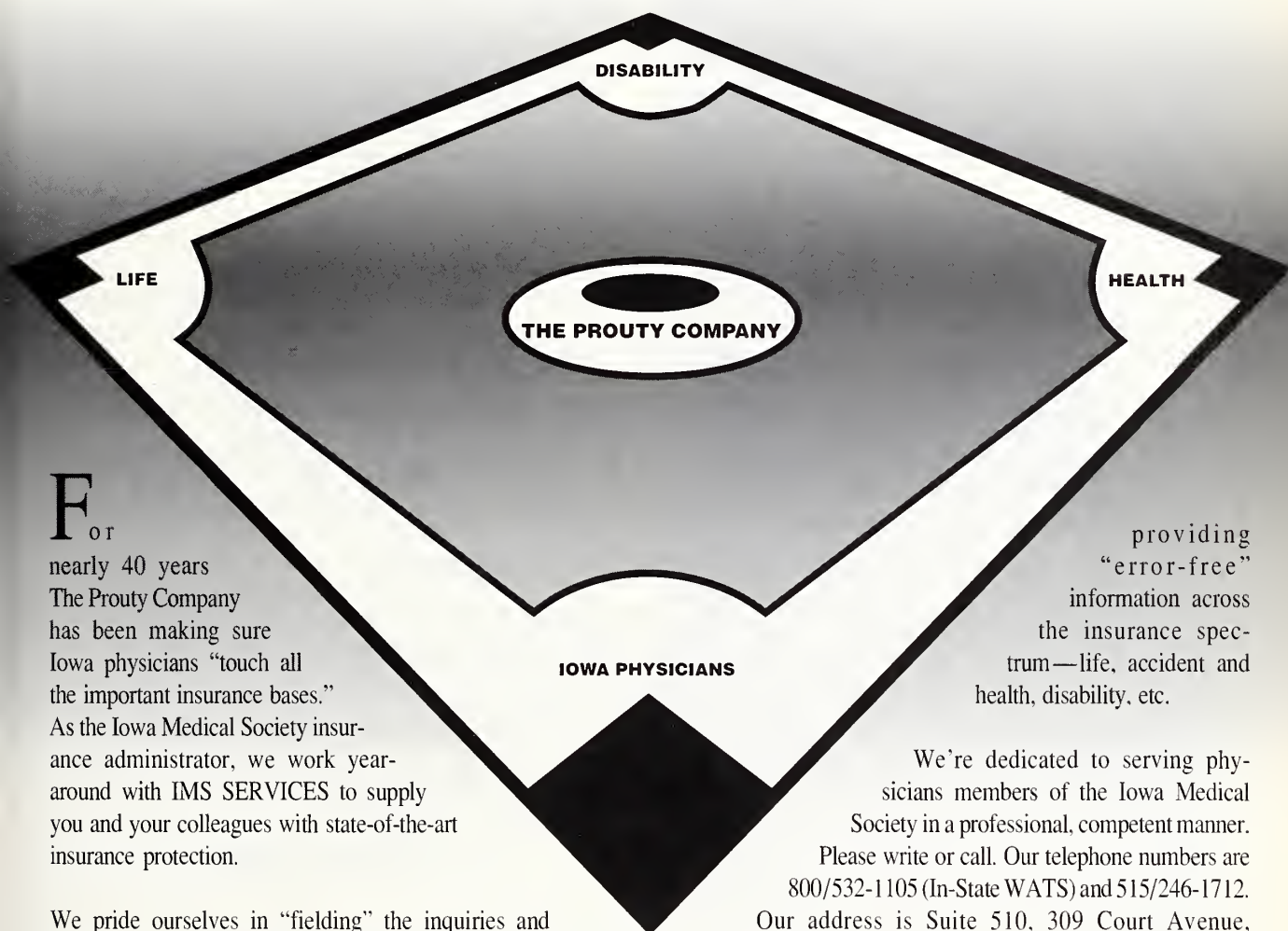
Two years ago, in an effort to sidestep the competitive bid process and maintain the current distribution patterns of infant formula, the largest companies, Ross and Mead Johnson, began offering rebates to state WIC programs on their share of the formula WIC purchased. These "open-market" agreements did not require competitive bids or restrict the brands available through WIC. With rebate contracts in effect since June 1988, Iowa was one of the first states in the country to sign open market agreements.

When Congress reauthorized the WIC Program last summer, it required states to use competitive bidding for rebate contracts to maximize savings in the purchase of infant formula.

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This information on public health matters is furnished and sponsored by the Iowa Department of Public Health.

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## About Iowa Physicians

**Dr. Charlotte Koenig** has begun private practice in Kalona. Dr. Koenig received the M.D. degree from the University of Colorado School of Medicine, Denver, Colorado and served a family practice residency at the University of Colorado. **Dr. John Walker**, Waterloo, has retired after 41 years as an orthopedic surgeon. Dr. Walker received the M.D. degree at the U. of I. College of Medicine. **Drs. James McCabe, Gary Mansheim, Thomas Boyd and David Carlson** have established the Burlington Area Family Practice Center. Dr. Mansheim has practiced in Burlington for 8 years and Dr. McCabe for nearly one year. **Dr. Julie VanBeek** has joined the staff of the Des Moines Medical Group, P.C. in Carlisle. Dr. VanBeek

received the M.D. degree from the University of Minnesota Medical School, Minneapolis, Minnesota and completed a family practice residency at the Mayo Clinic, Rochester, Minnesota. **Dr. William Durbin** has joined **Drs. Steven Sohn, Kurt Klise and Jeff Allyn** at Heartland Family Clinic in Perry. Dr. Durbin received the M.D. degree at the U. of I. College of Medicine and completed a family practice residency at Broadlawns Medical Center, Des Moines. **Dr. Ronald Myrom**, West Union, has been certified as a diplomate in geriatric medicine. Dr. Myrom practices at the Gundersen Clinic. **Dr. Lynn Lindaman** has joined the Iowa Orthopaedic Center, Des Moines. Dr. Lindaman received the M.D. degree from the Uni-



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versity of Illinois at Chicago Health Sciences Center, Chicago, Illinois. **Dr. David Cathcart** has joined **Dr. Glendon Button** at the Conrad Clinic. Dr. Cathcart received the M.D. degree from the U. of I. College of Medicine and completed a family practice residency at Broadlawns Medical Center in Des Moines. Two physicians have joined Family Medicine of Mt. Pleasant, P.C.: **Dr. John Bennett** and **Dr. Brad Angelos**. Dr. Bennett received the M.D. degree from George Washington University School of Medicine, Washington, D.C. and served his residency at U. of I. Hospitals and Clinics. Dr. Angelos received the M.D. degree from Creighton University School of Medicine, Omaha, Nebraska and had been in private practice in Sikeston, Missouri. **Dr. Kevin Liudahl**, Sioux City, recently became a member of the American Board of Orthopaedic Surgeons. The Wolfe Clinic of Marshalltown has opened a new office in Cedar Falls. **Dr. Norman Woodlief**, formerly an ophthalmologist at the Marshalltown Wolfe Clinic, has begun practice there.

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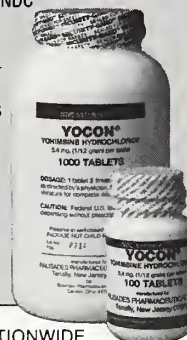
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#### References:

1. A. Morales et al., New England Journal of Medicine: 1221. November 12, 1981.
2. Goodman, Gilman — The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

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## Fifty Years of Cooperation

**"T**O PROVIDE A FORUM AND A mechanism for member organizations, representing providers of health care in the State of Iowa, to advance the art, science and distribution of health care in Iowa."

This original charter of the Iowa Health Council, which was formed in the late 1930s, still holds true over 50 years later. The Council's purpose was to serve as a forum for representatives of professional health organizations to discuss common interests and problems. The long standing goal behind the Council's activities and discussions is improving the health of Iowans.

### *A Nine-Member Organization*

Currently, the members of the Iowa Health Council include the Iowa Medical Society, the Iowa Dental Association, the Iowa Hospital Association, the Iowa Nurses Association, the Iowa Veterinary Medical Society, the Iowa Osteopathic Medical Association, the Iowa Health Care Association and the Iowa Podiatric Medical Society. These 9 organizations represent over 12,000 health care workers in Iowa. Dr. Donald Young of Des Moines is now completing a term as IHC president.

### *Past Projects: Health Careers and Substance Abuse*

The IHC has undertaken various public service and professional projects in the past. For several years, it was involved in health careers activities including a special exhibit at the Iowa State Fair.

For several years, there was concern over the low number of Iowa students interested in health care careers. The Iowa Health Council responded by assembling packets of ma-

terials and distributing them to Iowa schools. Special educational programs have also been held for representatives of the IHC member organizations. These have focused on current health care issues and leadership skills.

For 3 years, the IHC sponsored a statewide conference on substance abuse. The first conference was attended by over 500 students, teachers and parents and was so well received that a similar conference was scheduled for the following year.

The Council maintains an interest in any health care bills before the Iowa Legislature. There are times when opinions differ, but the Council's common goal remains the public good. For many years, the IHC sponsored a dinner honoring members of the Iowa General assembly and other state officials.

The fact these groups are able to work so well together is indicative of the high quality health care enjoyed by people across Iowa.

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October 1990

Iowa Medicine





# VASOTEC<sup>®</sup>

(ENALAPRIL MALEATE) MSD

VASOTEC is available in 2.5-mg, 5-mg, 10-mg, and 20-mg tablet strengths.

**Contraindications:** VASOTEC<sup>®</sup> (Enalapril Maleate, MSD) is contraindicated in patients who are hypersensitive to this product and in patients with a history of angioedema related to previous treatment with an ACE inhibitor.

**Warnings:** **Angioedema:** Angioedema of the face, extremities, lips, tongue, glottis, and/or larynx has been reported in patients treated with ACE inhibitors, including VASOTEC. In such cases, VASOTEC should be promptly discontinued and the patient carefully observed until the swelling disappears. In instances where swelling has been confined to the face and lips, the condition has generally resolved without treatment, although antihistamines have been useful in relieving symptoms. Angioedema associated with laryngeal edema may be fatal. **Where there is involvement of the tongue, glottis, or larynx likely to cause airway obstruction, appropriate therapy, e.g., subcutaneous epinephrine solution 1:1000 (0.3 mL to 0.5 mL), should be promptly administered.** (See ADVERSE REACTIONS.)

**Hypotension:** Excessive hypotension is rare in uncomplicated hypertensive patients treated with VASOTEC alone. Patients with heart failure taking VASOTEC commonly have some reduction in blood pressure, especially with the first dose, but discontinuation of therapy for continuing symptomatic hypotension usually is not necessary when dosing instructions are followed; caution should be observed when initiating therapy. (See DOSAGE AND ADMINISTRATION.) Patients at risk for excessive hypotension, sometimes associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death, include those with the following conditions or characteristics: heart failure, hyponatremia, high-dose diuretic therapy, recent intensive diuresis or increase in diuretic dose, renal dialysis, or severe volume and/or salt depletion of any etiology. It may be advisable to eliminate the diuretic (except in patients with heart failure), reduce the diuretic dose, or increase salt intake cautiously before initiating therapy with VASOTEC in patients at risk for excessive hypotension who are able to tolerate such adjustments. (See PRECAUTIONS, Drug Interactions and ADVERSE REACTIONS.) In patients at risk for excessive hypotension, therapy should be started under very close medical supervision and such patients should be followed closely for the first two weeks of treatment and whenever the dose of enalapril and/or diuretic is increased. Similar considerations may apply to patients with ischemic heart disease or cardiovascular disease in whom an excessive fall in blood pressure could result in a myocardial infarction or cerebrovascular accident. If excessive hypotension occurs, the patient should be placed in the supine position and, if necessary, receive an intravenous infusion of normal saline. A transient hypotensive response is not a contraindication to further doses of VASOTEC, which usually can be given without difficulty once the blood pressure has stabilized. If symptomatic hypotension develops, a dose reduction or discontinuation of VASOTEC or concomitant diuretic may be necessary.

**Neutropenia/Agranulocytosis:** Another ACE inhibitor, captopril, has been shown to cause agranulocytosis and bone marrow depression, rarely in uncomplicated patients but more frequently in patients with renal impairment, especially if they also have a collagen vascular disease. Available data from clinical trials of enalapril are insufficient to show that enalapril does not cause agranulocytosis at similar rates. Foreign marketing experience has revealed several cases of neutropenia or agranulocytosis in which a causal relationship to enalapril cannot be excluded. Periodic monitoring of white blood cell counts in patients with collagen vascular disease and renal disease should be considered.

**Precautions:** **General:** **Impaired Renal Function:** As a consequence of inhibiting the renin-angiotensin-aldosterone system, changes in renal function may be anticipated in susceptible individuals. In patients with severe heart failure whose renal function may depend on the activity of the renin-angiotensin-aldosterone system, treatment with ACE inhibitors, including VASOTEC, may be associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death.

In clinical studies in hypertensive patients with unilateral or bilateral renal artery stenosis, increases in blood urea nitrogen and serum creatinine were observed in 20% of patients. These increases were almost always reversible upon discontinuation of enalapril and/or diuretic therapy. In such patients, renal function should be monitored during the first few weeks of therapy.

Some patients with hypertension or heart failure with no apparent preexisting renal vascular disease have developed increases in blood urea and serum creatinine, usually minor and transient, especially when VASOTEC has been given concomitantly with a diuretic. This is more likely to occur in patients with preexisting renal impairment. Dosage reduction and/or discontinuation of the diuretic and/or VASOTEC may be required.

**Evaluation of patients with hypertension or heart failure should always include assessment of renal function.** (See DOSAGE AND ADMINISTRATION.)

**Hypertension:** Elevated serum potassium ( $>5.7$  mEq/L) was observed in approximately 1% of hypertensive patients in clinical trials. In most cases these were isolated values which resolved despite continued therapy. Hypertension was a cause of discontinuation of therapy in 0.28% of hypertensive patients. In clinical trials in heart failure, hypokalemia was observed in 3.8% of patients, but was not a cause for discontinuation.

Risk factors for the development of hypokalemia include renal insufficiency, diabetes mellitus, and the concomitant use of potassium-sparing diuretics, potassium supplements, and/or potassium-containing salt substitutes, which should be used cautiously, if at all, with VASOTEC. (See Drug Interactions.)

**Surgery/Anesthesia:** In patients undergoing major surgery or during anesthesia with agents that produce hypotension, enalapril may block angiotensin II formation secondary to compensatory renin release. If hypotension occurs and is considered to be due to this mechanism, it can be corrected by volume expansion.

#### Information for Patients:

**Angioedema:** Angioedema, including laryngeal edema, may occur especially following the first dose of enalapril. Patients should be so advised and told to report immediately any signs or symptoms suggesting angioedema (swelling of face, extremities, eyes, lips, tongue, difficulty in swallowing or breathing) and to take no more drug until they have consulted with the prescribing physician.

**Hypotension:** Patients should be cautioned to report lightheadedness, especially during the first few days of therapy. If actual syncope occurs, the patients should be told to discontinue the drug until they have consulted with the prescribing physician.

All patients should be cautioned that excessive perspiration and dehydration may lead to an excessive fall in blood pressure because of reduction in fluid volume. Other causes of volume depletion such as vomiting or diarrhea may also lead to a fall in blood pressure; patients should be advised to consult with the physician.

**Hypertension:** Patients should be told not to use salt substitutes containing potassium without consulting their physician.

**Neutropenia:** Patients should be told to report promptly any indication of infection (e.g., sore throat, fever) which may be a sign of neutropenia.

**NOTE:** As with many other drugs, certain advice to patients being treated with enalapril is warranted. This information is intended to aid in the safe and effective use of this medication. It is not a disclosure of all possible adverse or intended effects.

#### Drug Interactions:

**Hypotension: Patients on Diuretic Therapy:** Patients on diuretics and especially those in whom diuretic therapy was recently instituted may occasionally experience an excessive reduction of blood pressure after initiation of therapy with enalapril. The possibility of hypotensive effects with enalapril can be minimized by either discontinuing the diuretic or increasing the salt intake prior to initiation of treatment with enalapril. If it is necessary to continue the diuretic, provide close medical supervision after the initial dose for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and DOSAGE AND ADMINISTRATION.)

**Agents Causing Renin Release:** The antihypertensive effect of VASOTEC is augmented by antihypertensive agents that cause renin release (e.g., diuretics).

**Other Cardiovascular Agents:** VASOTEC has been used concomitantly with beta-adrenergic-blocking agents, methyl-dopa, nitrates, calcium-blocking agents, hydralazine, prazosin, and digoxin without evidence of clinically significant adverse interactions.

**Agents Increasing Serum Potassium:** VASOTEC attenuates potassium loss caused by thiazide-type diuretics. Potassium-sparing diuretics (e.g., spironolactone, triamterene, or amiloride), potassium supplements, or potassium-containing salt substitutes may lead to significant increases in serum potassium. Therefore, if concomitant use of these agents is indicated because of demonstrated hypokalemia, they should be used with caution and with frequent monitoring of serum potassium. Potassium-sparing agents should generally not be used in patients with heart failure receiving VASOTEC.

**Lithium:** Lithium toxicity has been reported in patients receiving lithium concomitantly with drugs which cause elimination of sodium, including ACE inhibitors. A few cases of lithium toxicity have been reported in patients receiving concomitant VASOTEC and lithium and were reversible upon discontinuation of both drugs. It is recommended that serum lithium levels be monitored frequently if enalapril is administered concomitantly with lithium.

**Pregnancy—Category C:** There was no fetotoxicity or teratogenicity in rats treated with up to 200 mg/kg/day of enalapril (333 times the maximum human dose). Fetotoxicity, expressed as a decrease in average fetal weight, occurred in rats given 1200 mg/kg/day of enalapril but did not occur when these animals were supplemented with saline. Enalapril was not teratogenic in rabbits. However, maternal and fetal toxicity occurred in some rabbits at doses of 1 mg/kg/day or more. Saline supplementation prevented the maternal and fetal toxicity seen at doses of 3 and 10 mg/kg/day, but not at 30 mg/kg/day (50 times the maximum human dose).

Radioactivity was found to cross the placenta following administration of labeled enalapril to pregnant hamsters.

There are no adequate and well-controlled studies of enalapril in pregnant women. However, data are available that show enalapril crosses the human placenta. Because the risk of fetal toxicity with the use of ACE inhibitors has not

been clearly defined, VASOTEC<sup>®</sup> (Enalapril Maleate, MSD) should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Postmarketing experience with all ACE inhibitors thus far suggests the following with regard to pregnancy outcome. Inadvertent exposure limited to the first trimester of pregnancy has not been reported to affect fetal outcome adversely. Fetal exposure during the second and third trimesters of pregnancy has been associated with fetal and neonatal morbidity and mortality.

When ACE inhibitors are used during the later stages of pregnancy, there have been reports of hypotension and decreased renal perfusion in the newborn. Oligohydramnios in the mother has also been reported, presumably representing decreased renal function in the fetus. Infants exposed *in utero* to ACE inhibitors should be closely observed for hypotension, oliguria, and hyperkalemia. If oliguria occurs, attention should be directed toward support of blood pressure and renal perfusion with the administration of fluids and pressors as appropriate. Problems associated with prematurity such as patent ductus arteriosus have occurred in association with maternal use of ACE inhibitors, but it is not clear whether they are related to ACE inhibition, maternal hypertension, or the underlying prematurity.

**Nursing Mothers:** Milk in lactating rats contains radioactivity following administration of <sup>14</sup>C enalapril maleate. It is not known whether this drug is secreted in human milk. Because many drugs are secreted in human milk, caution should be exercised when VASOTEC is given to a nursing mother.

**Pediatric Use:** Safety and effectiveness in children have not been established.

**Adverse Reactions:** VASOTEC has been evaluated for safety in more than 10,000 patients, including over 1000 patients treated for one year or more. VASOTEC has been found to be generally well tolerated in controlled clinical trials involving 2987 patients.

**HYPERTENSION:** The most frequent clinical adverse experiences in controlled trials were: headache (5.2%), dizziness (4.3%), and fatigue (3%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in controlled clinical trials were: diarrhea (1.4%), nausea (1.4%), rash (1.4%), cough (1.3%), orthostatic effects (1.2%), and asthenia (1.1%).

**HEART FAILURE:** The most frequent clinical adverse experiences in both controlled and uncontrolled trials were: dizziness (7.3%), hypotension (6.7%), orthostatic effects (2.2%), syncope (2.2%), cough (2.2%), chest pain (2.1%), and diarrhea (2.1%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in both controlled and uncontrolled clinical trials were: fatigue (1.8%), headache (1.8%), abdominal pain (1.6%), asthenia (1.6%), orthostatic hypotension (1.6%), vertigo (1.6%), angina pectoris (1.5%), nausea (1.3%), vomiting (1.3%), bronchitis (1.3%), dyspnea (1.3%), urinary tract infection (1.3%), rash (1.3%), and myocardial infarction (1.2%).

Other serious clinical adverse experiences occurring since the drug was marketed or adverse experiences occurring in 0.5% to 1% of patients with hypertension or heart failure in clinical trials in order of decreasing severity within each category:

**Cardiovascular:** Cardiac arrest; myocardial infarction or cerebrovascular accident, possibly secondary to excessive hypotension in high-risk patients (see WARNINGS, Hypotension); pulmonary embolism and infarction; pulmonary edema; rhythm disturbances; atrial fibrillation; palpitation.

**Digestive:** Ileus, pancreatitis, hepatitis (hepatocellular or cholestatic jaundice), melena, anorexia, dyspepsia, constipation, glossitis, stomatitis, dry mouth.

**Musculoskeletal:** Muscle cramps.

**Nervous/Psychiatric:** Depression, confusion, ataxia, somnolence, insomnia, nervousness, paresthesia.

**Urogenital:** Renal failure, oliguria, renal dysfunction (see PRECAUTIONS and DOSAGE AND ADMINISTRATION).

**Respiratory:** Bronchospasm, rhinorrhea, sore throat and hoarseness, asthma, upper respiratory infection.

**Skin:** Exfoliative dermatitis, toxic epidermal necrolysis, Stevens-Johnson syndrome, herpes zoster, erythema multiforme, urticaria, pruritus, alopecia, flushing, hyperhidrosis.

**Special Senses:** Blurred vision, taste alteration, anosmia, tinnitus, conjunctivitis, dry eyes, tearing.

A symptom complex has been reported which may include a positive ANA, an elevated erythrocyte sedimentation rate, arthralgia/arthritis, myalgias, fever, serositis, vasculitis, leukocytosis, eosinophilia, photosensitivity, rash, and other dermatologic manifestations.

**Angioedema:** Angioedema has been reported in patients receiving VASOTEC (0.2%). Angioedema associated with laryngeal edema may be fatal. If angioedema of the face, extremities, lips, tongue, glottis, and/or larynx occurs, treatment with VASOTEC should be discontinued and appropriate therapy instituted immediately. (See WARNINGS.)

**Hypotension:** In the hypertensive patients, hypotension occurred in 0.9% and syncope occurred in 0.5% of patients following the initial dose or during extended therapy. Hypotension or syncope was a cause for discontinuation of therapy in 0.1% of hypertensive patients. In heart failure patients, hypotension occurred in 6.7% and syncope occurred in 2.2% of patients. Hypotension or syncope was a cause for discontinuation of therapy in 1.9% of patients with heart failure. (See WARNINGS.)

#### Clinical Laboratory Test Findings:

**Serum Electrolytes:** Hypertension (see PRECAUTIONS), hyponatremia

**Creatinine, Blood Urea Nitrogen:** In controlled clinical trials, minor increases in blood urea nitrogen and serum creatinine, reversible upon discontinuation of therapy, were observed in about 0.2% of patients with essential hypertension treated with VASOTEC alone. Increases are more likely to occur in patients receiving concomitant diuretics or in patients with renal artery stenosis. (See PRECAUTIONS.) In patients with heart failure who were also receiving diuretics with or without digitalis, increases in blood urea nitrogen or serum creatinine, usually reversible upon discontinuation of VASOTEC and/or other concomitant diuretic therapy, were observed in about 11% of patients. Increases in blood urea nitrogen or creatinine were a cause for discontinuation in 1.2% of patients.

**Hemoglobin and Hematocrit:** Small decreases in hemoglobin and hematocrit (mean decreases of approximately 0.3 g/dL and 1.0 L/L, respectively) occur frequently in either hypertension or heart failure patients treated with VASOTEC but are rarely of clinical importance unless another cause of anemia coexists. In clinical trials, less than 0.1% of patients discontinued therapy due to anemia.

**Bone (Causal Relationship Unknown):** In marketing experience, rare cases of neutropenia, thrombocytopenia, and bone marrow depression have been reported. A few cases of hemolysis have been reported in patients with G6PD deficiency.

**Liver Function Tests:** Elevations of liver enzymes and/or serum bilirubin have occurred.

**Dosage and Administration:** **Hypertension:** In patients who are currently being treated with a diuretic, symptomatic hypotension occasionally may occur following the initial dose of VASOTEC. The diuretic should, if possible, be discontinued for two to three days before beginning therapy with VASOTEC to reduce the likelihood of hypotension. (See WARNINGS.) If the patient's blood pressure is not controlled with VASOTEC alone, diuretic therapy may be resumed.

If the diuretic cannot be discontinued, an initial dose of 2.5 mg should be used under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, Drug Interactions.)

The recommended initial dose in patients not on diuretics is 5 mg once a day. Dosage should be adjusted according to blood pressure response. The usual dosage range is 10 to 40 mg per day administered in a single dose or in two divided doses. In some patients treated once daily, the antihypertensive effect may diminish toward the end of the dosing interval. In such patients, an increase in dosage or twice-daily administration should be considered. If blood pressure is not controlled with VASOTEC alone, a diuretic may be added.

Concomitant administration of VASOTEC with potassium supplements, potassium salt substitutes, or potassium-sparing diuretics may lead to increases of serum potassium (see PRECAUTIONS).

**Dosage Adjustment in Hypertensive Patients with Renal Impairment:** The usual dose of enalapril is recommended for patients with a creatinine clearance  $\geq 30$  mL/min (serum creatinine of up to approximately 3 mg/dL). For patients with creatinine clearance  $\leq 30$  mL/min (serum creatinine  $\geq 3$  mg/dL), the first dose is 2.5 mg once daily. The dosage may be titrated upward until blood pressure is controlled or to a maximum of 40 mg daily.

**Heart Failure:** VASOTEC is indicated as adjunctive therapy with diuretics and digitalis. The recommended starting dose is 2.5 mg once or twice daily. After the initial dose of VASOTEC, the patient should be observed under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, Drug Interactions.) If possible, the dose of the diuretic should be reduced, which may diminish the likelihood of hypotension. The appearance of hypotension after the initial dose of VASOTEC does not preclude subsequent careful dose titration with the drug, following effective management of the hypotension. The usual therapeutic dosage range for the treatment of heart failure is 5 to 20 mg daily given in two divided doses. The maximum daily dose is 40 mg. Once-daily dosing has been effective in a controlled study, but nearly all patients in this study were given 40 mg, the maximum recommended daily dose, and there has been much more experience with twice-daily dosing. In addition, in a placebo-controlled study which demonstrated reduced mortality in patients with severe heart failure (NYHA Class IV), patients were treated with 2.5 to 40 mg per day of VASOTEC, almost always administered in two divided doses. (See CLINICAL PHARMACOLOGY, Pharmacodynamics and Clinical Effects.) Dosage may be adjusted depending upon clinical or hemodynamic response. (See WARNINGS.)

**Dosage Adjustment in Patients with Heart Failure and Renal Impairment or Hyponatremia:** In patients with heart failure who have hyponatremia (serum sodium  $< 130$  mEq/L) or with serum creatinine  $> 1.6$  mg/dL, therapy should be initiated at 2.5 mg daily under close medical supervision. (See DOSAGE AND ADMINISTRATION, Heart Failure, WARNINGS, and PRECAUTIONS, Drug Interactions.) The dose may be increased to 2.5 mg b.i.d., then 5 mg b.i.d. and higher as needed, usually at intervals of four days or more, if at the time of dosage adjustment there is not excessive hypotension or significant deterioration of renal function. The maximum daily dose is 40 mg.

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For a Brief Summary of Prescribing Information, please see the last page of this advertisement.

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# Iowa Medicine

November 1990

Journal of the Iowa Medical Society

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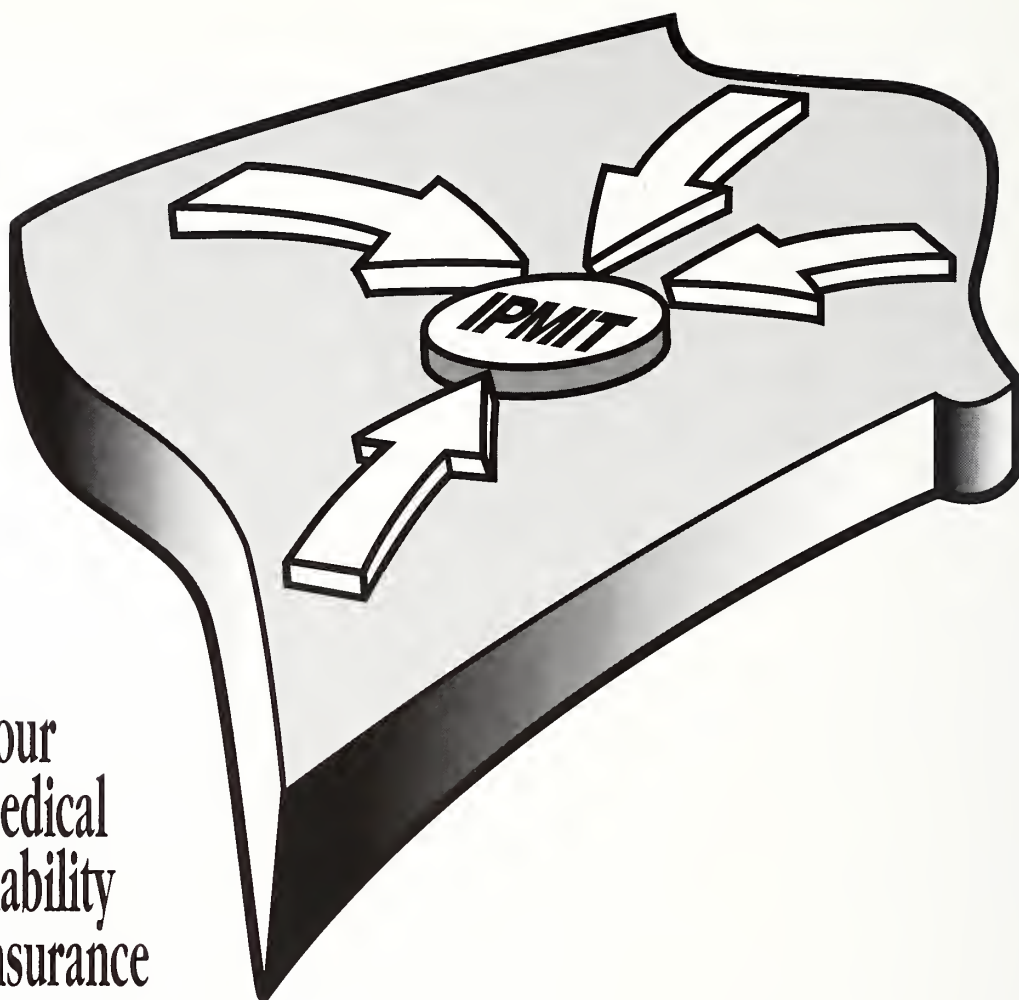
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Volume 80 Number 11

Journal of the Iowa Medical Society

November 1990

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- 5 President's Privilege
- 1 Questions and Answers
- 3 Recent Books
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- 1 The Editor Comments
- 3 CME Notebook
- 4 Biomedical Ethics
- 6 Practice Management
- 8 About Iowa Physicians
- 0 Classified Advertising
- 2 Advertising Index
- 4 Physicians' Directory
- 6 In the Public Interest

Special Articles

- 516 **What's New in Ophthalmology**  
*Ophthalmology has a reputation as an innovative field, as demonstrated by these treatment advances.*  
**Christopher F. Blodi, M.D.**
- 518 **Topical Philately — A Severe Case**  
*Chasing around the world after rare stamps is this author's primary symptom.*  
**F.C. Blodi, M.D.**

Scientific Article

- 525 **Diabetic Retinopathy**  
*Monitoring diabetic patients for development of diabetic retinopathy is essential, say these experts.*  
**James C. Folk, M.D., Christopher F. Blodi, M.D., Jose S. Pulido, M.D.**

About the Cover

The new 3-story brick IMS headquarters building took just under a year to build and houses the staffs of the Iowa Medical Society, IMS Services and Iowa Physicians Mutual Insurance Trust. The building is located directly east of the former IMS headquarters. See inside this issue for a special pullout brochure on the new building.



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Please see next page of this advertisement for references and a brief summary of prescribing information.

**SEARLE**



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### References:

1. Data on file, G.D. Searle & Co. 2. 1988 Joint National Committee: The 1988 report of the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure. *Arch Intern Med* 1988;148:1023-1038.

### BRIEF SUMMARY

**Contraindications:** Severe LV dysfunction (see *Warnings*), hypotension (systolic pressure < 90 mm Hg) or cardiogenic shock, sick sinus syndrome (if no pacemaker is present), 2nd- or 3rd-degree AV block (if no pacemaker is present), atrial flutter/fibrillation with an accessory bypass tract (eg, WPW or LGL syndromes), hypersensitivity to verapamil.

**Warnings:** Verapamil should be avoided in patients with severe LV dysfunction (eg, ejection fraction < 30%) or moderate to severe symptoms of cardiac failure and in patients with any degree of ventricular dysfunction if they are receiving a beta-blocker. Control milder heart failure with optimum digitalization and/or diuretics before Calan SR is used. Verapamil may occasionally produce hypotension. Elevations of liver enzymes have been reported. Several cases have been demonstrated to be produced by verapamil. Periodic monitoring of liver function in patients on verapamil is prudent. Some patients with paroxysmal and/or chronic atrial flutter/fibrillation and an accessory AV pathway (eg, WPW or LGL syndromes) have developed an increased antegrade conduction across the accessory pathway bypassing the AV node, producing a very rapid ventricular response or ventricular fibrillation after receiving I.V. verapamil (or digitalis). Because of this risk, oral verapamil is contraindicated in such patients. AV block may occur (2nd- and 3rd-degree, 0.8%). Development of marked 1st-degree block or progression to 2nd- or 3rd-degree block requires reduction in dosage or, rarely, discontinuation and institution of appropriate therapy. Sinus bradycardia, 2nd-degree AV block, sinus arrest, pulmonary edema and/or severe hypotension were seen in some critically ill patients with hypertrophic cardiomyopathy who were treated with verapamil.

**Precautions:** Verapamil should be given cautiously to patients with impaired hepatic function (in severe dysfunction use about 30% of the normal dose) or impaired renal function, and patients should be monitored for abnormal prolongation of the PR interval or other signs of overdosage. Verapamil may decrease neuromuscular transmission in patients with Duchenne's muscular dystrophy and may prolong recovery from the neuromuscular blocking agent vecuronium. It may be necessary to decrease verapamil dosage in patients with attenuated neuromuscular transmission. Combined therapy with beta-adrenergic blockers and verapamil may result in additive negative effects on heart rate, atrioventricular conduction and/or cardiac contractility; there have been reports of excessive bradycardia and AV block, including complete heart block. The risks of such combined therapy may outweigh the benefits. The combination should be used only with caution and close monitoring. Decreased metoprolol clearance may occur with combined use. Chronic verapamil treatment can increase serum digoxin levels by 50% to 75% during the first week of therapy, which can result in digitalis toxicity. In patients with hepatic cirrhosis, verapamil may reduce total body clearance and extrarenal clearance of digitoxin. The digoxin dose should be reduced when verapamil is given, and the patient carefully monitored. Verapamil will usually have an additive effect in patients receiving blood-pressure-lowering agents. Disopyramide should not be given within 48 hours before or 24 hours after verapamil administration.

Concomitant use of flecainide and verapamil may have additive effects on myocardial contractility, AV conduction, and repolarization. Combined verapamil and quinidine therapy in patients with hypertrophic cardiomyopathy should be avoided, since significant hypotension may result. Concomitant use of lithium and verapamil may result in a lowering of serum lithium levels or increased sensitivity to lithium. Patients receiving both drugs must be monitored carefully. Verapamil may increase carbamazepine concentrations during combined use. Rifampin may reduce verapamil bioavailability. Phenobarbital may increase verapamil clearance. Verapamil may increase serum levels of cyclosporin. Concomitant use of inhalation anesthetics and calcium antagonists needs careful titration to avoid excessive cardiovascular depression. Verapamil may potentiate the activity of neuromuscular blocking agents (curare-like and depolarizing); dosage reduction may be required. Adequate animal carcinogenicity studies have not been performed. One study in rats did not suggest a tumorigenic potential, and verapamil was not mutagenic in the Ames test. Pregnancy Category C. There are no adequate and well-controlled studies in pregnant women. This drug should be used during pregnancy, labor, and delivery only if clearly needed. Verapamil is excreted in breast milk; therefore, nursing should be discontinued during verapamil use.

**Adverse Reactions:** Constipation (7.3%), dizziness (3.3%), nausea (2.7%), hypotension (2.5%), headache (2.2%), edema (1.9%), CHF, pulmonary edema (1.8%), fatigue (1.7%), dyspnea (1.4%), bradycardia: HR < 50/min (1.4%), AV block: total 1°, 2°, 3° (1.2%), 2° and 3° (0.8%), rash (1.2%), flushing (0.6%), elevated liver enzymes. The following reactions, reported in 1.0% or less of patients, occurred under conditions where a causal relationship is uncertain: angina pectoris, atrioventricular dissociation, chest pain, claudication, myocardial infarction, palpitations, purpura (vasculitis), syncope, diarrhea, dry mouth, gastrointestinal distress, gingival hyperplasia, ecchymosis or bruising, cerebrovascular accident, confusion, equilibrium disorders, insomnia, muscle cramps, paresthesia, psychotic symptoms, shakiness, somnolence, arthralgia and rash, exanthema, hair loss, hyperkeratosis, macules, sweating, urticaria, Stevens-Johnson syndrome, erythema multiforme, blurred vision, gynecomastia, increased urination, spotty menstruation, impotence.

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**SEARLE**

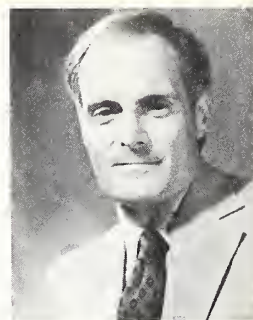
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**Robert D. Whinery, M.D.**



## Good Grades

**R**EMEMBER WHEN YOUR MAIN concern was getting all A's so you could get into medical school? Once again, we need to think about good grades.

If possible, forget about the federal government for just a moment. I know that HCFA, the federal budget and Congress have altered our practice lives. Remember when Medicare was first proposed? "We fought it" but, when it arrived, "we bought it."

So, despite the historical whys and wherefores, the public and our patients are demanding better grades from medicine. The A's they expect and deserve are Affordable, Accessible and Accountable medical care.

Perhaps our tendency has been to concentrate on one aspect of this triad while ignoring the others. Medical delivery with real quality and expertise must be available to those who need it.

Consider some of the proposed solutions to the current problems of the uninsured and underinsured. They are an indication that industry and all employers are looking for these three qualities. The 'Editor's Note' in the October *Nations Business*

magazine reveals "all firms (large and small) seem to face a continuing cycle of cost increases for medical services followed by higher insurance premiums to cover these costs. The result can lead to a sense of frustration and helplessness."

So, back to the books. Doctors individually and organized medicine as a whole need to get more A grades. I believe the AMA's Health Access America campaign and the Iowa Medical Society's parallel proposal are steps in that direction.

I would be remiss if I did not mention that this month's *IOWA MEDICINE* is devoted to my own specialty, ophthalmology. This is an exciting and challenging specialty, as is demonstrated by several excellent articles appearing in this issue.

I'm taking this opportunity to tip my hat to my fellow ophthalmologists who devote their time to improving the vision of people across Iowa.

*Robert D. Whinery, M.D.*

Robert D. Whinery, M.D.  
President



# What's New in Ophthalmology

CHRISTOPHER F. BLODI, M.D.

Iowa City, Iowa

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*The author reviews recent clinical innovations in the field of ophthalmology which are helping lower the rate of vision loss.*

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**O**PTHALMOLOGY HAS A TRADITION of innovation in medicine. Ophthalmologists were pioneers in organ transplant surgery (cornea), use of anti-viral medicines, use of the microscope to aid surgical procedures and establishment of a distinct specialty board of examiners. Recent advances incorporate technical innovations and clinical needs to help prevent vision loss.

More than 2 million Americans suffer from glaucoma, almost 5% of these are blind. Increased intraocular pressure can cause optic nerve damage manifested by progressive visual field loss. Ophthalmologists now have an impressive array of therapeutic options to lower intraocular pressure. Numerous types of drops and oral medications remain the front line of treatment. Laser treatment can be used in recalcitrant cases and has proven most effective in breaking acute angle-closure glaucoma attacks.

Filtering surgery for patients with severe glaucoma has become more effective with

use of 5-fluorouracil. By injecting this anti-metabolite subconjunctivally on a daily basis for 1-2 weeks postoperatively, scarring is much reduced. This leads to an increased success rate, especially in patients who have had numerous prior eye operations.

Diabetic retinopathy, a major and preventable cause of blindness, is discussed elsewhere in this issue of *IOWA MEDICINE*. Aging macular degeneration of the retina has remained a more vexing problem. No effective treatment exists for this disease where the basic pathophysiologic events remain unknown. Preliminary reports indicate supplemental zinc in the diet of affected patients is beneficial. Severe complications of macular degeneration caused by new blood vessel formation under and into the retina can often be frequently treated with the judicious use of outpatient laser photocoagulation treatment.

An unfortunate but frequent complication of AIDS is cytomegalovirus retinitis. This opportunistic infection can cause bilateral blindness. Ophthalmologists work in conjunction with internists to treat affected patients with intravenous ganciclovir. Severely affected patients are sometimes given injections of ganciclovir into the vitreous cavity. This can rapidly stop disease progression and may allow the patient to avoid the common systemic side effects of the drug, neutropenia and thrombocytopenia.

Advances in surgery of the anterior segment of the eye continue to focus on cataract extraction and refractive surgery. Microsurgical techniques to remove cataractous lenses and place an intraocular lens implant have become extremely refined. The surgical success rate for rehabilitating vision to levels al-

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Dr. Blodi is associated with the University of Iowa Department of Ophthalmology, Iowa City.

lowing reading and driving are extraordinarily high. Improvements in intraoperative technique and in the design and safety of intraocular lens implant material will bring further improvement in this procedure. Cataract is often a leading cause of blindness in third world countries. Many of these patients cannot afford to visually rehabilitate their eyes with the spectacles or contact lenses required. American ophthalmologists continue to look for ways to make cataract extraction and lens implantation a viable technique for the citizens of many underdeveloped nations.

The field of refractive surgery has generated much publicity, both within the medical profession and the lay public. Radial keratotomy, a technique where partial thickness incisions are made on the cornea, has been shown to be an effective way to reduce myopia. The persistent postoperative problems of hyperopia and fluctuating visual acuity have made it apparent that only some nearsighted patients will want this procedure. Many other refractive surgical techniques are in early stages of development and include various methods to resculpture the cornea or

to suture a "living contact lens" on the corneal surface. The use of the excimer laser in the future may allow for more progress in this field as it is most apparent that refractive surgery requires very precise and predictable incisions. An excimer laser may prove extremely useful in performing such tasks.

Botulinum A toxin has been found to be useful in treating certain periorcular muscle disorders. Patients with essential blepharospasm, a debilitating and chronic disorder in which patients' eyelids squeeze shut, can often be treated with subcutaneous injections of Botulinum toxin in the affected muscles. Some patients with extraocular muscle disorders causing a strabismus (misalignment of the eyes) can be helped with these injections.

Technological advances alone cannot help some patients. Ophthalmologists have become acutely aware of the need to counsel and aid patients with poor ("low") vision. Ophthalmologists can often find ways to help patients with reading and other daily living tasks.

## • • Medicare Impact Analysis - 1991 to 1996 • •

*Worried about HCFA's Physician Payment Reform?  
Don't know whether to participate?*

Revenue projections can now be made showing how much more or less you'll be making under the new rules for each year of the implementation. Projections use the latest RBRVS information from the Cambridge Health Economics Group.

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# Topical Philately — A Severe Case

F. C. BLODI, M.D.

Iowa City, Iowa

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*Collecting postage stamps related to your specialty can be an addictive hobby, says this author.*

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**N**EARLY TWENTY YEARS AGO I scrutinized with increasing interest an exhibit at the annual meeting of our academy. Dr. Rank of Milwaukee presented a number of postage stamps depicting famous ophthalmologists of various countries. Each stamp was mounted in a frame with an explanatory paragraph.

I was always interested in the history of ophthalmology and collected stamps as a boy, but this approach fascinated me. I had a long talk with Dr. Rank and decided I would follow his example and start collecting stamps concerned with ophthalmology, a typical example of topical philately.

Soon my collection was not confined to famous ophthalmologists. I began including scientists who contributed significantly to ophthalmology, ophthalmologists who became famous in other areas of endeavor (so-called "truant ophthalmologists"), ophthalmological congresses, blind or one-eyed per-

sons, welfare and rehabilitation of the blind and the diagnosis and treatment of eye diseases.

The challenge is finding these stamps. No stamp in my collection is worth more than \$200; but collecting them takes time, ingenuity and perseverance. You quickly find out there are others who have this hobby. As a matter of fact, there is a whole group of ophthalmologists in this country, Latin America and Europe who have the same interest. We often exchange our findings and experiences. Old catalogues must be studied and the new issues carefully scrutinized. I have chased some of the stamps all over the world. There are dealers, especially in Europe, who diligently and conscientiously help me find relevant stamps.

Writing an essay to accompany each stamp is like a research project. Each finding and statement has to be documented and referenced. Each stamp has to be identified, usually by its Scott number.

My collection has grown to over 1000 stamps. I published a book on this topic which comprises nearly 300 pages, 100 illustrations and 10 color plates. (*The Eye, Vision and Ophthalmology on Postage Stamps*, J.P. Wayenborgh, Bonn 1984.) It appeared more than 6 years ago, but is now hopelessly out of date.

This type of topical philately is a highly rewarding hobby which I would recommend to anybody who loves intellectual stimulation and the thrill of a search that resembles the most difficult obstacle course.

My advice is confine yourself to a limited area. All of medicine would be too

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Dr. Blodi is a professor (emeritus) of ophthalmology, Department of Ophthalmology, University Hospitals, Iowa City.

much for an average collector since thousands of stamps are issued every year. A specialty, a time period or a limited medical aspect is more than enough to keep you busy, stimulated and entertained. The reward is not only a beautiful collection (mine comprises now 11 albums), but the feeling of satisfaction of a mission completed.

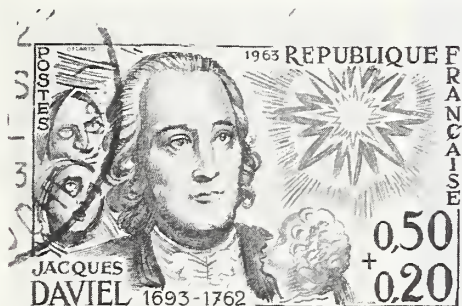


Figure 1. In 1750, the genial French surgeon Jacques Daviel for the first time extracted a cataract (instead of merely couching it), thereby establishing ophthalmology as an independent surgical specialty.



Figure 2. Albrecht von Graefe, the greatest clincial ophthalmologist of all times. He pioneered the treatment of glaucoma, strabismus and neuro-ophthalmology.



Figure 4. This stamp emphasizes the importance of a slit lamp examination to diagnose river blindness (onchocerciasis), a frequent cause of visual loss in central Africa.



Figure 3. Jose Rizal, the hero of Philippine independence, was a practicing ophthalmologist. This painting shows him performing indirect ophthalmoscopy on his mother whose cataract he had extracted.

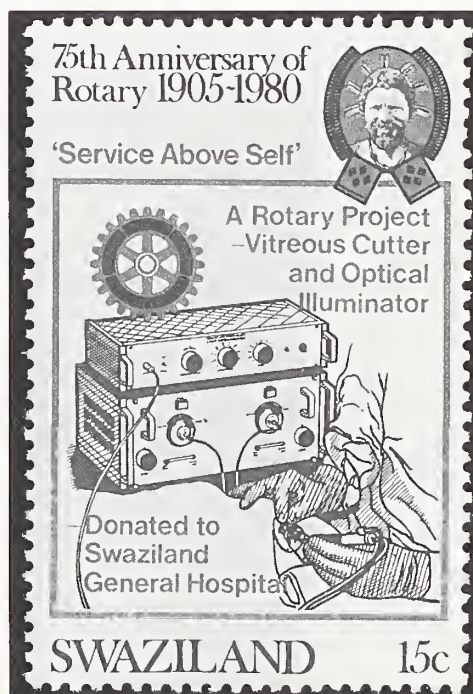


Figure 5. Even the modern vitrectomy instrument can be found on a postage stamp.



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## Questions and Answers

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**Russell Widner, M.D.**



# Educational and Socio-Economic Goals

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*The author, president of the Iowa Academy of Ophthalmology for the past year, discusses educational and legislative efforts by Iowa's ophthalmologists.*

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### **What is the current picture with regard to the supply of ophthalmologists?**

If ophthalmologists delivered all eye care including glasses and contact lens fittings to Iowa citizens, there would be a shortage of ophthalmologists. However, this primary care role is often filled by optometrists. As optometrists have expanded their legally defined area of care to include diagnosing and treating non-surgical ocular disease, primary care delivered by ophthalmologists has probably decreased. However, tertiary care is now available for conditions for which there was no treatment only a few years ago. Examples such as diabetic retinopathy and age-related macular degeneration are detailed elsewhere in this magazine. All things considered, the need for ophthalmologists has probably increased and Iowa is somewhat underserved.

### **What recent technological and scientific advances have affected your specialty?**

The intraocular lens became available in Iowa in 1975 and revolutionized ophthalmic care. Visual results from intraocular lenses are much superior to visual results with cataract glasses. Prior to 1975, patients with good vision in one eye and poor vision in the other

eye from cataract were frequently not operated upon. The only way to balance the two eyes subsequent to cataract surgery in one eye at that time was a contact lens. Cataracts occur primarily in people over 60, and people over 60 have an aversion to and difficulty with contact lenses. Other advances in cataract surgery such as microsurgery, modern sutures and improved surgical technique have combined with the intraocular lens to result in treatment which can now be beneficially offered earlier and to a much larger number of patients than before. While not risk free, the surgical results from cataract intraocular lens surgery are statistically compelling.

Diabetic retinopathy is another area for which treatment has become available in the last 20 years. Many patients with diabetic retinopathy can now benefit substantially from argon laser photocoagulation and/or vitrectomy. Fluorescein angiography has greatly expanded our understanding of age-related macular degeneration and other conditions characterized by subretinal neovascularization. Argon and krypton laser treatment is available for some of these patients. New drugs and laser treatment for glaucoma have become available. Surgical treatment for myopia (radial keratotomy) has arrived and may be replaced soon with the Eximer laser.

### **What are the objectives of your specialty society?**

The Iowa Academy of Ophthalmology has educational and socioeconomic objectives. The

*(Continued next page)*



educational objectives are met primarily by sponsoring a scientific session presented by the Department of Ophthalmology at the University of Iowa in Iowa City in September. This year's meeting was devoted to diabetic retinopathy. The affiliated American Academy has embarked on a program called "The Elimination of Preventable Blindness from Diabetes by the Year 2000," or simply "Diabetes 2000." This educational program will inform not only ophthalmologists, but primary care givers such as family practitioners, internists, and pediatricians and patients.

The Iowa Academy attempts to meet its socioeconomic goals by influencing the legislative process, and comments on issues such as safety legislation, reimbursement and scope of practice. The Iowa Academy employs lobbyists and encourages its members to be politically active.

To increase low income Iowans' access to care, most Iowa Academy members participate in the American Academy's National Eye Care project as well as the Iowa Medical Society's excellent Medicare Partners project.

As more people question the effectiveness of professional review organizations, second opinion studies for procedures such as cataract extraction are being reviewed. The Iowa Academy has provided input to the Iowa Foundation for Medical Care concerning a possible second opinion study in Iowa.

### **What recent developments have influenced the practice environment for ophthalmology?**

As in all areas of medical care, rapid change has characterized the delivery of ophthalmic care in the last few years. The issues that have probably influenced ophthalmic care the most are the increasing role of government regulations and the expansion of optometry into what has been traditionally ophthalmic care.

Virtually all significant surgical procedures now require preapproval by a professional review organization or an insurance company. The tendency for administrators is to try to quantify requirements for these procedures. Most ophthalmologists believe this tends to obviate clinical judgement and, to some extent, dehumanize the delivery of medical care.

It is now routine to see patients who have already been diagnosed and placed on treat-

ment for infections, inflammations or glaucoma by their local optometrists, or to see patients in conjunction with their local optometrists for these and other conditions. The character of these interactions certainly influences the way ophthalmologists perform and the way patients perceive and receive their care.

### **What are the current concerns of the Iowa Academy of Ophthalmology?**

Current concerns of the Iowa Academy of Ophthalmology are the concerns of its members, which are similar to those of many Iowa physicians. We are concerned about decreasing reimbursement in the face of increasing costs of practice. We are disheartened by recent increases in optometric scope of practice. We see many rural people living in poverty with decreased access to care. We perceive what appears to be rapidly increasing drug prices.

We see the Health Care Financing Administration and professional review organizations increasingly intervening in the doctor/patient relationship in a manner that appears to dehumanize the art and practice of medicine. We see the federal government on the one hand considering the development of preferred practice organizations presumably to deliver high volume cataract surgery at a bargain price. We hear that the office of the inspector general has determined 1.5% of cataract surgery is unnecessary; however, to date the press releases have failed to define unnecessary. We are concerned that regulations designed to decrease costs tend to depersonalize medical care by replacing clinical decision making by doctors and patients.

### **LETTERS TO THE EDITOR**

If you have a comment regarding something you've read in *IOWA MEDICINE* or an observation on conditions affecting the practice of medicine in Iowa, don't keep it to yourself. Share your thoughts in a letter to the editor. We'd like to hear from you.

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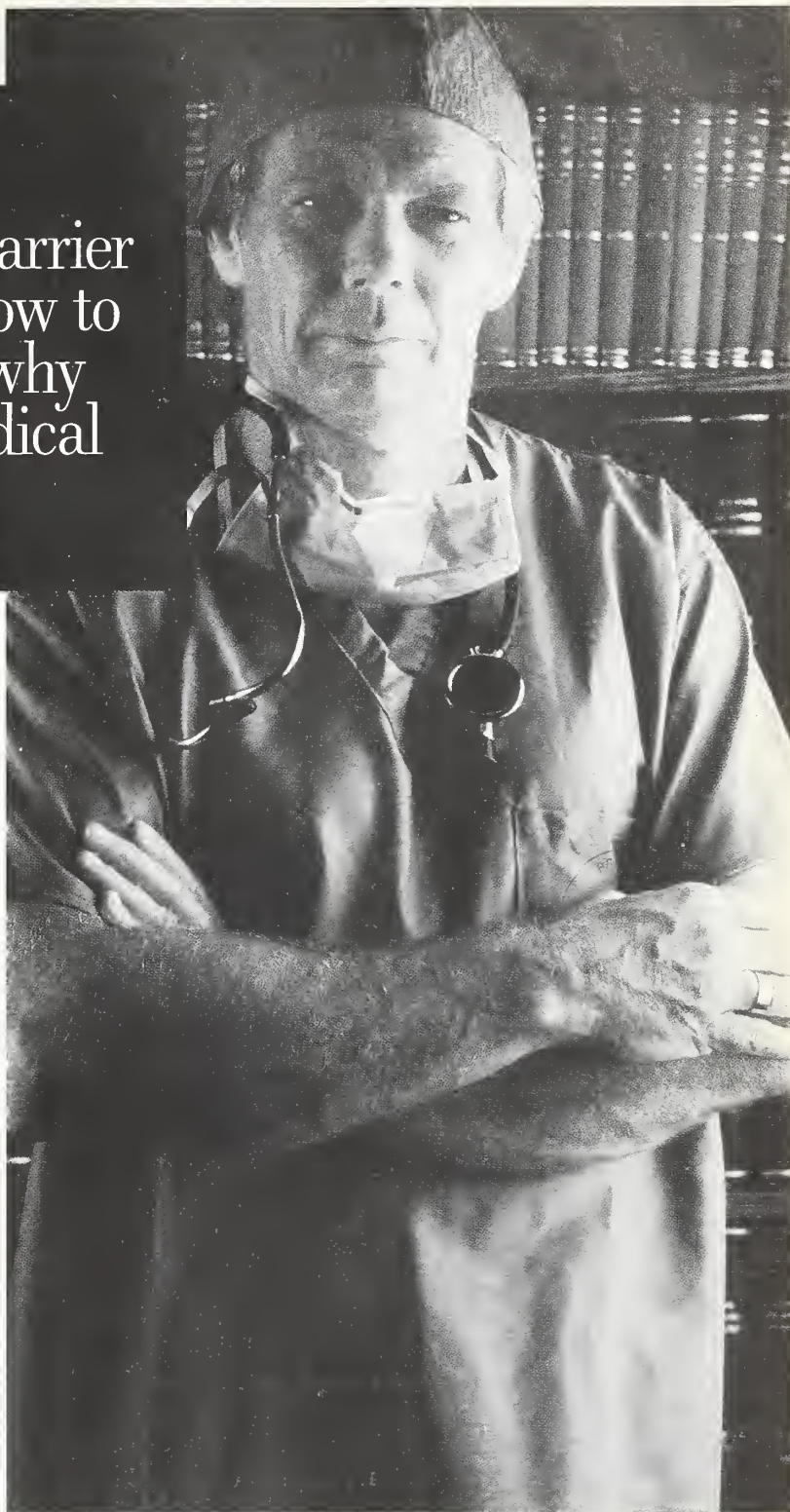
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Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

#### Precautions

- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of non-susceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

#### Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:

- Hypersensitivity reactions have been reported in about 1.5% of patients and include morbilliform eruptions (1 in 100). Pruritus, urticaria, and positive Coombs' tests each occur in less than 1 in 200 patients. Cases of serum-sickness-like reactions have been reported with the use of Ceclor. These are characterized by findings of erythema multiforme, rashes, and other skin manifestations accompanied by arthritis/arthralgia, with or without fever, and differ from classic serum sickness in that there is infrequently associated lymphadenopathy and proteinuria, no circulating immune complexes, and no evidence to date of sequelae of the reaction. While further investigation is ongoing, serum-sickness-like reactions appear to be due to hypersensitivity and more often occur during or following a second (or subsequent) course of therapy with Ceclor. Such reactions have been reported more frequently in children than in adults with an overall occurrence ranging from 1 in 200 (0.5%) in one focused trial to 2 in 8,346 (0.024%) in overall clinical trials (with an incidence in children in clinical trials of 0.055%) to 1 in 38,000 (0.003%) in spontaneous event reports. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy; occasionally these reactions have resulted in hospitalization, usually of short duration (median hospitalization = two to three days, based on postmarketing surveillance studies). In those requiring hospitalization, the symptoms have ranged from mild to severe at the time of admission with more of the severe reactions occurring in children. Antihistamines and glucocorticoids appear to enhance resolution of the signs and symptoms. No serious sequelae have been reported.

- Stevens-Johnson syndrome, toxic epidermal necrolysis,

and anaphylaxis have been reported rarely. Anaphylaxis may be more common in patients with a history of penicillin allergy.

- Gastrointestinal (mostly diarrhea): 2.5%
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.
- Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypotonia, dizziness, and somnolence have been reported.

- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1% and, rarely, thrombocytopenia and reversible interstitial nephritis.

#### Abnormalities in laboratory results of uncertain etiology

- Slight elevations in hepatic enzymes.
- Transient lymphocytosis, leukopenia, and, rarely, hemolytic anemia and reversible neutropenia.
- Rare reports of increased prothrombin time with or without clinical bleeding in patients receiving Ceclor and Coumadin concomitantly.
- Abnormal urinalysis; elevations in BUN or serum creatinine.
- Positive direct Coombs' test.
- False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinitest<sup>®</sup> tablets but not with Tes-Tape<sup>®</sup> (glucose enzymatic test strip, Lilly).

PA 8791 AMP [021490LR] Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285.



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# Diabetic Retinopathy

JAMES C. FOLK, M.D.

CHRISTOPHER F. BLODI, M.D.

JOSE S. PULIDO, M.D.

Iowa City, Iowa

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***Diabetic retinopathy continues to be a leading and preventable cause of blindness in the United States. The authors review the signs and symptoms of background diabetic retinopathy and proliferative diabetic retinopathy.***

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**T**EN MILLION AMERICANS have diabetes and 5,000 go blind each year from diabetic retinopathy, accounting for 12% of new blindness in the United States. Eleven thousand develop new diabetic macular edema and 22,000 develop new proliferative disease.

There is hope. Randomized, prospective, controlled trials performed by ophthalmologists have shown that argon laser treatment for eyes with macular edema reduces the risk of moderate visual loss by 50%. Laser photocoagulation also reduces the risk of severe visual loss from proliferative retinopathy by over 50%. But this treatment must be timely. The patient must be aware of these diseases and

the need for regular eye care. The primary care physician must understand diabetic retinopathy and the results of these laser trials to make the referral to the ophthalmologist.

The American Academy of Ophthalmology has launched a program called "Diabetes 2000" or "Elimination of Preventable Blindness from Diabetes by the Year 2000." This program will get the word out to ophthalmologists, primary care physicians, patients and the public about the need to monitor diabetic patients for retinopathy. This article will review diabetic retinopathy, its diagnosis and treatment.

Background diabetic retinopathy develops first. It typically starts 5-10 years after the diagnosis of juvenile diabetes but can be present at the time of diagnosis in maturity onset diabetics. All the background changes occur within the retina from alterations of the normal retinal blood vessels. First a few capillaries occlude and microaneurysms develop. Later the capillary loss worsens and retinal hemorrhage and sometimes cotton-wool spots appear. Leakage from microaneurysms or areas of capillary dropout can cause fluid and even lipid to accumulate within the retina. When this fluid occurs in the central retina (macular edema), the vision becomes blurry.

Some patients later develop proliferative diabetic retinopathy. Although most common in juvenile diabetics after 12-15 years of diabetes, it can also occur in maturity onset diabetics at any time. Worsening capillary loss with ischemia causes the growth of abnormal new vessels from the optic nerve head or the retinal vessels. These abnormal vessels are

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The authors are associated with the University of Iowa Department of Ophthalmology, Iowa City.

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fragile, proliferate on the front surface of the retina and attach themselves to the back surface of the vitreous. The vitreous later contracts and rips open the fragile vessels to cause a vitreous hemorrhage or pulls hard enough on the vitreoretinal attachments to cause a retinal detachment.

### ***Diagnosis of Retinopathy***

Ideally all diabetic patients will see an ophthalmologist at least yearly. Primary care physicians should also examine the retinas of diabetics. A dilated pupil is a must. Tropicamide 1% or neosynephrine 2.5% are safe and dilate pupils well. These drops require 30 minutes or more to work and should be given when the patient arrives at the doctor's office. Patients with macular edema usually complain of blurred vision. This should alert their primary care physician. With a direct ophthalmoscope, there is fuzziness to the central retina which indicates edema. Yellow lipid deposits (hard exudates) are usually present. It is important to assess the overall condition of the retina. Some patients may have only a few microaneurysms or small hemorrhages and can be seen yearly. Numerous hemorrhages, cotton-wool spots or dilated and kinked ("sausaging") veins indicate worsening ischemia and herald proliferative disease. These patients should be seen at four month intervals.

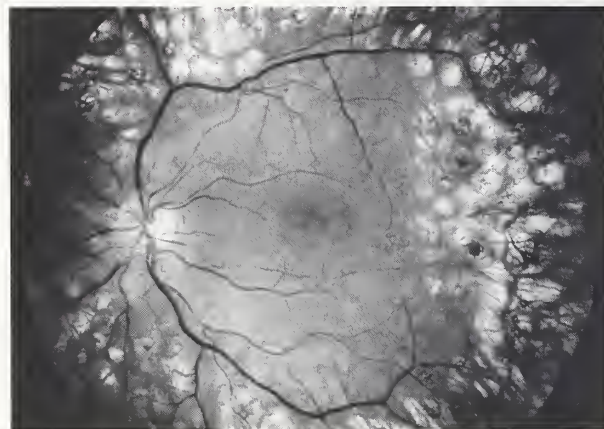
Patients with more serious proliferative disease are asymptomatic until there is a vitreous hemorrhage or retinal detachment. Webs of fine new vessels on the optic nerve head or on the posterior retina can be seen well with the direct ophthalmoscope. Examining the retina with the red-free or green light on the ophthalmoscope will highlight both the normal and abnormal blood vessels. Preretinal blood or vitreous hemorrhage almost always indicates proliferative disease. Proliferative disease cannot be missed because it generally leads to blindness if not treated.

### ***Diabetic Retinopathy Studies***

The results of the Early Treatment Diabetic Retinopathy Study (ETDRS) and the Diabetic Retinopathy Study (DRS) demonstrate the importance of diagnosing macular edema or proliferative retinopathy. The ETDRS included 3,711 diabetics with background di-



**Figure 1.** Diabetic macular edema. Note hard exudation in macula of right eye.



**Figure 2.** Scatter laser treatment. Fundus photographs showing scars from scatter (panretinal) photocoagulation for proliferative diabetic retinopathy. Note sparing of central retina (macula).

abetic retinopathy and significant macular edema who were randomized to immediate laser photocoagulation or to the deferral of laser with close observation. For focal photocoagulation the laser was aimed directly at the leaking blood vessels causing the macular edema. Focal laser reduced the risk of vision loss compared to no treatment and improved the chances of better vision in patients with macular edema. The ETDRS also found that aspirin (650 mg/day) did not alter the progression of retinopathy or increase the risk of vitreous hemorrhage.

The DRS included 1,758 patients with proliferative diabetic retinopathy. Patients were randomized to no treatment or to scatter laser treatment which involved placing many small burns throughout the peripheral retina, but sparing the macula. Scatter treatment reduced the risk of severe visual loss over no treatment by at least 50%. The results were significant only for those patients with more severe retinopathy and a greater risk of visual loss. Practically, however, physicians simply must recognize neovascularization, realize it is dangerous and refer the patient promptly to an ophthalmologist.

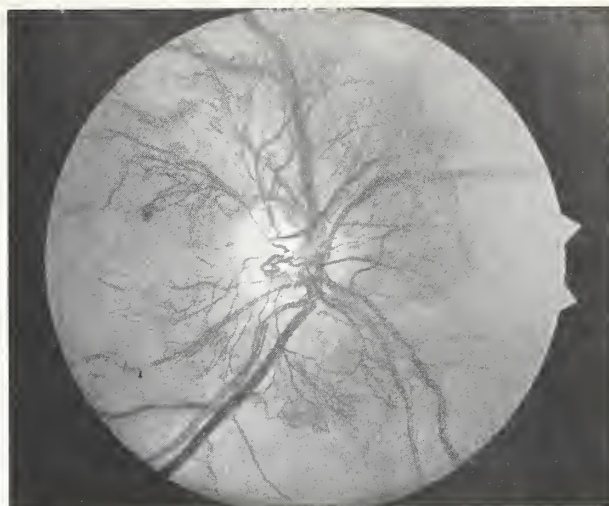
### **Treatment**

As indicated above, laser photocoagulation is useful in treating both diabetic macular edema and proliferative diabetic retinopathy. Treatment is performed on an outpatient basis using drops or periocular injections for anesthesia. Sometimes multiple sessions divided over weeks or months are necessary to stabilize macular edema or halt proliferative retinopathy.

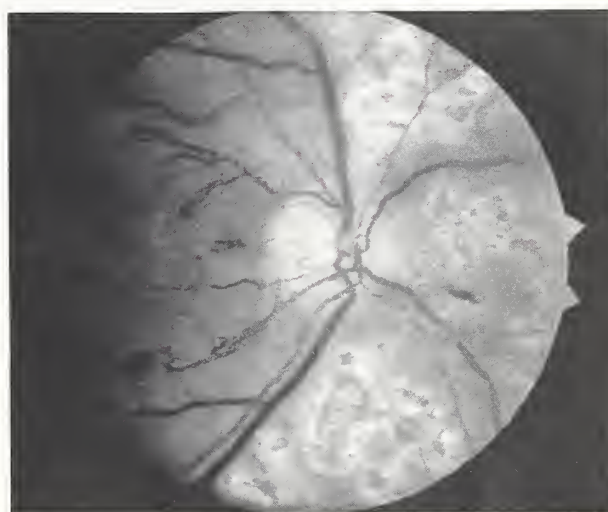
Laser photocoagulation is usually performed with the patient sitting at a slit lamp biomicroscope. A contact lens focuses the aiming beam on the retina. When the treating physician steps on the foot pedal, a short pulse of laser energy is delivered to the retina. This burns the retina, causing a focal permanent scar to form. The laser must be aimed carefully to avoid a misplaced burn and vision loss. In treating macular edema, the laser scars eliminate or reduce leaking from blood vessels. In treating proliferative retinopathy, the scars work in an unknown fashion to cause regression of abnormal new blood vessels.

In general, it is more difficult to eliminate leakage or cause regression of new blood vessels in eyes with advanced retinopathy compared to early disease. Early referral of such patients therefore may increase the chance of success and reduce the loss of vision.

Some diabetic patients first come to an ophthalmologist in far-advanced stages of proliferative diabetic retinopathy. A few diabetics reach the same point despite aggressive laser treatment. Many of these patients can be helped by microscopic intraocular surgery. This procedure, called vitreous surgery, allows for removal of hemorrhage and scars from the vitreous cavity and for reattaching retinas that



**Figure 3. Proliferative diabetic retinopathy. Note fronds of new vessels growing on optic nerve (disc neovascularization).**



**Figure 4. Regression of proliferative diabetic retinopathy. Same eye showing resolution of disc neovascularization after scatter laser treatment.**

have been tractionally detached by vitreous adhesions to the abnormal blood vessels.

### **Summary**

Macular edema can occur early, especially in maturity onset diabetics. These patients will usually have blurred vision. An examination (through dilated pupil) will reveal fuzziness or hard exudates in the central retina. The ETDRS

*(Continued next page)*



proved focal laser treatment to leaking blood vessels reduces vision loss. Proliferative retinopathy occurs after 12-15 years or more of diabetes in juvenile diabetics and any time in maturity onset diabetics. Proliferative disease may be completely asymptomatic until there is a vitreous hemorrhage or retinal detachment. The DRS showed scatter laser treatment reduces severe visual loss by at least 50% in patients with proliferative disease. If proliferative disease is not treated, it almost always causes blindness. We must shout this message to all primary care physicians and diabetics. If we are successful, we can eliminate preventable blindness in Iowa's diabetics.

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## Recent Books

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*A Physician's Guide to Professional Corporations*, American Medical Association, \$18.00 for AMA members (\$27.00 for nonmembers). Trying to decide if it still makes sense with the new tax law for your practice to be incorporated? This all-new edition can help you resolve the question. Available from the AMA, the book explains pros and cons of incorporation and clearly outlines legal and tax implications. It clarifies the rules of operating a professional corporation by translating this complex issue into common terms using a point-by-point approach. The book, OP 378289, is available from the American Medical Association, Book and Pamphlet Fulfillment, P.O. Box 10946, Chicago, Illinois 60610-0946 or call 1-800/621-8335 with VISA or Mastercard.

Sternberg, Martin L.A., 1990, *American Sign Language Concise Dictionary*, Harper and Row, New York, New York, paperback \$5.95. This paperback book is an abridged edition of the original work by the same name. As with any conventional dictionary, the entries are alphabetical with a brief definition of the word. Following each is a brief description of the manner of signing the word as well as a drawing of the sign as seen by the one to whom the conversation is addressed. This book is truly a valuable reference manual, easily carried while traveling or at the workplace.

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Petrow, Steven, 1990, *Dancing Against the Darkness*, Lexington Books, D.C. Heath and Company, Lexington, Massachusetts, \$18.95. The author, once mistakenly diagnosed as a victim of AIDS, presents a sympathetic insight to the plight of patients with AIDS. Numerous interviews with AIDS victims, their families and friends form the basis of this book. The reader will gain a better understanding of the impact AIDS has on society.

Chalker, Rebecca and Kristene Whitmore, 1990, *Overcoming Bladder Disorders*, Harper and Row, New York, New York, \$19.95. This book approaches a subject often not discussed in lay terms. Written for the distressed victim of bladder disorders, the authors consider anatomy, physiology, etiologic factors and clinical findings. There is adequate discussion of methods of treatment as well as concern for helping the patient cope with problems.

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## The Editor Comments

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Marion E. Alberts, M.D.



# A Building for the Future

**I**T IS INTERESTING TO DELVE into the history of the Iowa Medical Society's office sites. Some data is not available; some is quite sketchy. Our new headquarters marks the most ambitious of several building ventures.

Before 1924 the site of the then Iowa State Medical Society is not recorded. In earlier years the secretary of the Society fulfilled all duties without a staff. Two secretaries were elected annually; a corresponding secretary and a recording secretary. In 1872 a new constitution and by-laws eliminated the 2 separate offices, creating instead a secretary of the Society with an elected assistant. Dr. George P. Hanawalt was the first secretary under the new constitution.

When Dr. James W. Osborn was elected secretary in 1912, he rented office space (address not recorded) and hired a stenographer. Miss Ida Britton served in that capacity until 1924. Dr. Tom B. Throckmorton became secretary in 1916 and moved the Society offices to the Bankers Trust Building (then known as the Equitable Building). In 1928 Dr. Throckmorton indicated the task of secretary was increasingly time-consuming. Consequently, the trustees employed a managing director to coordinate the activities of the Society. As the Society's activities expanded, additional office personnel were added. Today, the entire staff of the IMS, IMS Services and IPMIT numbers 40.

The headquarters of the Society remained in the Bankers Trust Building until 1952. The September 1952 Journal of the Iowa State Medical Society (it became the Iowa Medical Society in 1961) announced "a dream realized." The Society headquarters at 529 36th Street was described as "not an elaborate one but well designed to meet our needs." The offices comprised about 4,000 square feet of floor space. The building was nearly paid for at completion and "much money was saved" by retaining most of the old furniture and equipment. The work rooms and meeting rooms were described as well arranged for efficiency, "a far cry from the old crowded quarters downtown." Little did the Society realize that in a short span of years that facility would be outgrown.

The year 1966 was designated by the IMS as a "year of dedication." Despite extensive renovations of the 36th Street offices, the phenomenal growth in membership and activities demanded more office space. The new building at 1001 Grand Avenue in West Des Moines was described by then IMS president Samuel P. Leinbach, as follows: "There is a symbolic beauty in the architectural design of the building we dedicate today. Brought together in tangible form are the qualities which medicine has gathered

*(Continued next page)*



since antiquity. From its over-all beauty we are made aware of the devotion maintained and cherished by a profession whose purpose is to alleviate the afflictions of man . . . this building then is a tribute to those who have gone before us, a challenge to us who live to meet adequately the problems of today in order that we can provide those of tomorrow with goals that are in keeping with the highest traditions of medicine." Little could those 25 Iowa physicians meeting at Burlington in June 1850 for the purpose of organizing our state medical society foresee our great impact upon society. Five thousand square feet of floor space gave way to 2½ times that amount. Milford O. Rouse, M.D., AMA president, at the dedication of the new building suggested 4 building blocks to be used as a foundation of our Society in the years to come. First, "confidence in ourselves"; then, we "should continue to build" or at least rebuild the confidence of the public in our profession. The third build-

ing block proposed by Dr. Rouse was "participation in our medical societies," and lastly, "a faithful participation by members of the Society in the activities of their communities."

Those foundation stones have not failed in the building of the IMS. IMS is strong and its mission remains in concert with the need of all society. This is epitomized by the growth in membership. Again we need more room and have moved on to new and more spacious and efficient headquarters . . . not far this time; just next door, with the same street address (thanks to the City of West Des Moines and the U. S. Post Office). The foundation building blocks remain the same as discussed by Dr. Rouse. The ghosts of our past leaders will pervade the halls of the new endeavors of IMS. Their initiatives of 14 decades past have held fast and we of a proud profession move continuously onward for the betterment of health care. — M.E.A.

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**Richard M. Caplan, M.D.**



# Thoughts of Sun Yat-Sen

**A** PLEASURE IT WAS TO HAVE met the distinguished physician from a large Taiwanese medical school who presented me a handsome booklet that described the medical school he serves. Naturally it contained far more than I absorbed, even though most of it was English. (Their college song, printed in Western musical notation, gave its lyrics, however, in Chinese ideographs, one symbol per note.)

Later, I browsed in the list of courses to be completed by each student in the 7-year program leading to the M.D. degree. The entering student, having completed the equivalent of our high school, begins in Year 1 with "The Thoughts of Dr. Sun Yat-Sen," a 2-semester sequence for 4 credit hours. I recalled that Dr. Sun, the revolutionary, had trained as a physician and practiced briefly. I therefore pondered (but only for a moment) whether Sun's thoughts might be medical, but I decided against it. (Just a month earlier I had learned from a visiting Czechoslovakian medical educator that after their national upheaval of late 1989, his medical school stopped requiring the study of Marx and Lenin and substituted English for the previously required Russian.)

Another 4 semester hours went to General History of China. Chinese (8 hrs), English (8 hrs) and German (4 hrs) were part of that year, along with calculus (4), general chemistry (5) and general biology (5). Both physical education and military training were listed, but no credit granted. That left 2 semester hours of the required 44, which the student filled by electing one among these 2-

hour courses: Constitution of the Republic of China, International Relations, Introduction to Philosophy or Introduction to Law. A very busy year!

Year 2 consisted of general physics (5), analytical chemistry (2), organic chemistry (4), gross anatomy (7) and histology (4). The non-science courses included Contemporary History of China (2) and Japanese (4) along with Physical Education and Military Training. These courses summed to only 28 hours. Year 3 included General Sociology (2) and General Psychology (2) and 24 credits in medical sciences. Years 4, 5, 6 and year 7 (essentially an internship) had 33, 40, 35 and 48 credit hours that were all standard biomedical sciences and clinical topics, excepting one hour of medical ethics in Year 6.

The array of preparatory sciences, pre-clinical sciences and clinical sciences made the total curriculum greatly resemble those in the United States. Although impressed with the attention given to foreign language study, I was otherwise stunned by the paucity of course work in humanities, social sciences and the arts — and no apparent way to add them as electives. In truth, though, I've no reason to feel smug about that matter, for many USA students, even when taking 9 years to reach a similar point, complete their formal education and enter the arena of CME with never a course in literature, philosophy, economics or the arts. Even though I view such absences as deficiencies, I don't think our CME world is the place to address them. Fortunately, our state and nation offer rich opportunities for general continuing education. We practitioners could stand to take better advantage of them, both before and after retirement.

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Dr. Caplan is Associate Dean for Continuing Medical Education at the University of Iowa College of Medicine.



# Physicians and Assisted Suicide

**P**HYSICIAN-ASSISTED SUICIDE is an increasingly important subject for physicians and patients. In March, 1989, 12 distinguished physicians published an article in the *New England Journal of Medicine* in which 10 of them agreed "it is not immoral for a physician to assist in the rational suicide of a terminally ill person." In June, 1990, Jack Kevorkian, a retired pathologist in Michigan, gained international media attention by enabling a patient with Alzheimer's disease to terminate her life with the help of his "suicide machine."

For physicians, the issue of assisted suicide is difficult for ethical, legal and psychological reasons. Physicians participate in a professional tradition that has taught them (in the words of a 15th century maxim) to "cure sometimes, relieve often, and comfort always." The ethical grounding of this tradition has been the principle of nonmaleficence, a principle that calls on physicians (and the rest of us) to avoid harming persons through either intention or negligence. Because the tradition has usually conceived of death as the ultimate harm, two moral rules that have been derived from the principle of nonmaleficence are "do not kill" and "do not assist another person's death."

As the Kevorkian case illustrated, physicians who consider the possibility of assisting a patient to commit suicide should check out the legality of such an action in the jurisdiction in which they live. Although suicide itself was decriminalized in this country in the mid-1970s, assisting in a suicide remains a crime in many states, either by statute or under common law.

Given the psychological conditions that frequently precede suicide attempts, no phy-

sician should assist in the suicide of a patient who is clinically depressed or has other psychological problems that inhibit decision making. Even if the decision of a patient to commit suicide seems rational, many physicians receiving a request to assist in that action will experience considerable anguish as they wrestle with conflicting patient-centered obligations.

Nevertheless, for some patients whose pain and other suffering are refractory to treatment, whose futures will be filled with deteriorating mental and physical capacities, who prefer death to the continuation of an intolerable life and who are physically or psychologically unable to kill themselves, the desire to end suffering can result in a request for help from their physician.

We will discuss the morality of acting on such requests in the January column. To set the stage, let's be clear about what assisted suicide is and what it is not. Assisted suicide by physicians should not be confused with acts of abating life-sustaining treatment (numerous courts have determined that patients who refuse life-sustaining treatment usually want only to be free from unwanted medical interventions, not to die). Also, physician assisted suicide does not include acts of voluntary euthanasia (in these situations, the person who does the actual killing is someone other than the person who wants to die).

Rather, assisted suicide requires aid from a physician, relative, friend, nurse or other person who carries out the role of "enabler." The enabler can supply information on the most effective ways of committing suicide, provide a lethal dosage of pills or some other means of producing death, give the suicidal person encouragement in performing the act of self-destruction or help in the actual act of killing.

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This column is written by Robert Weir, Ph.D., director of biomedical ethics for the University of Iowa College of Medicine.

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# Watching Your Back: Facts About IRS Audits

**N**OW THAT YOU ARE FILING your 1990 tax return, you may be wondering what steps can be taken to avoid an IRS audit. There is no sure-fire method for avoiding examination, but it helps to understand how and why a return is selected for audit.

There are several popular myths about how to avoid being audited. The first is that by filing on April 15, you can reduce the probability that the IRS will detect any mistakes or unsupported claims. That simply isn't true. Most returns aren't processed until May, so being last doesn't mean you'll be ignored. The selection process the IRS uses to choose which returns to audit has nothing to do with the filing date.

Another misconception about the auditing process is that once you have received a tax refund check, your return won't be audited. Actually, refunds are often mailed automatically before returns are carefully examined. However, receiving a refund check indicates there were no arithmetic errors in your return.

The third myth is that if you don't attach supporting schedules to your return, the IRS will have trouble detecting errors. This may actually prompt additional scrutiny. If required schedules are not attached, you may be deemed to have filed an incomplete return and be subjected to penalties.

## ***What Prompts an Audit?***

The IRS uses 2 methods to select returns for further examination: Computer and man-

ual. Every tax return received by the IRS is categorized by the Discriminant Function (DIF) system. The DIF computer analyzes each return line by line, then assigns it to one of several audit classes based upon total positive income and occupation. Several variables are weighted mathematically based on their potential for tax change. Returns with high DIF scores are examined by IRS personnel for errors or excessive deductions.

There is nothing you can do about a high DIF score. With careful record keeping and an organized, well-presented tax return, you should have nothing to worry about if the system decides your return should be audited.

If you receive any Schedule K-1 Forms, 1099 or other income reporting documents, the IRS is able to automatically compare these to your return through its computer matching program. The program electronically totals the sources of income and compares them to the listings on the personal tax return. If discrepancies appear the IRS will request an explanation.

## ***Manual Inspection***

A return may be manually reviewed as a result of the DIF or document matching system. This procedure does not constitute an audit. The return may be quickly reviewed or subjected to a more detailed examination.

If the DIF or the document matching program don't initiate a review, your return could be manually inspected. For example, when an individual files a claim for refund, his or her return will probably be reviewed for audit potential. The greater the amount of deductions claimed, the more likely the IRS will request

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This article was written by Sharon Willmore, a tax associate in the Des Moines office of McGladrey and Pullen.

documentation to confirm them as legitimate. Again, unless the IRS requests that you provide them with written records, such reviews do not constitute audits.

The reviewer may ask for an explanation from the taxpayer if he or she decides the information in the return is incomplete or inaccurate. This is when careful record keeping pays off. When documents or records are requested, an audit is underway.

An audit can take 3 forms. A correspondence audit, which is performed through the mail, is usually conducted with the service center where the return was filed.

The other 2 types of audits are performed through a local IRS office. The office audit requires the taxpayer or representative appear at the IRS office. A field audit is performed at the taxpayer's place of business and usually occurs only when very complex returns require more detailed examination.

An individual may also be audited as a result of an investigation of a corporation or partnership in which he or she is involved. For example, adjustments made to a corporation's return may affect the individual shareholders, or vice versa.

The most unavoidable reason for individual tax audit is the taxpayer compliance measurement program (TCMP), which selects random taxpayers for a complete line-by-line audit. The results of such audits are used to update the formula used to assign the DIF scores discussed earlier.

### ***Document Deductions Carefully***

As you can see, filing an accurate return is the best way to reduce the potential for audit. You should also take the time to document your claimed deductions. Otherwise, it may be your word against the IRS if you are selected for audit.

Any entertainment or travel expenses related to business must be carefully recorded. Business expenses are a favorite for IRS auditors and can be a documentation nightmare for any taxpayer.

When claiming these deductions, be sure you can prove how much each expense actually was, the time and place the expense was incurred, the business purpose of the expense, the business relationship between the parties involved and the date and description of the event.

If you chose for some reason not to seek reimbursement for business expenses which are normally covered by your employer, you cannot claim the expenses on your return.

Keep a log book to substantiate business mileage. Employer-owned cars must be listed as a taxable fringe benefit if used by an employee for personal reasons. The IRS has standard tables to determine the vehicle's value for non-business use.

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*'If you are selected for an audit, presenting materials to the auditor in an organized manner is very important. If requested records are presented in a clear and organized manner, the IRS examiners may spend less time scrutinizing your documentation.'*

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Be careful in reporting any capital gains. Taxpayers often fail to correctly determine their basis in the property. For instance, the tax basis of stocks received as a gift must be reported at the tax basis at which the original owner acquired them. If the shares were inherited, the basis is determined by the stock's value at the time of the donor's death.

If you are selected for audit, presenting materials to the auditor in an organized manner is very important. If requested records are presented in a clear and organized manner, the IRS examiners may spend less time scrutinizing your documentation.

Developing a close relationship with your tax preparer will make the entire process run more smoothly. Utilize your accountant as an advisor to keep you informed about tax rules and the best way to cope with them. Your tax preparer is probably willing to share valuable advice if you're willing to take the time to discuss your situation.

Above all, keep in mind that an audit is nothing to fear. Well-kept books and a carefully prepared return are the best ways to avoid problems. In the event you are audited, it's best to be represented by a tax professional. In their effort to be complete, many people talk themselves into more problems.



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## About Iowa Physicians

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Three physicians have joined McFarland Clinic in Ames: **Dr. Kevin Whitford**, **Peter Buck** and **Kenneth Talbert**. Dr. Whitford received the M.D. degree at the U. of I. College of Medicine and served an internal medicine residency at the University of Kansas Medical Center, Kansas City, Kansas. Dr. Buck received the M.D. degree from the U. of I. College of Medicine and served a residency in orthopedic surgery at Mayo Clinic, Rochester, Minnesota. Prior to locating in Ames, Dr. Buck practiced at Boulder Medical Center, Boulder, Colorado. Dr. Talbert received the M.D. degree from the University of Minnesota Medical School, Minneapolis, Minnesota and served a residency in

ophthalmology at Rush-Presbyterian-St. Luke's Medical Center, Chicago, Illinois. Dr. Talbert previously practiced at the United States Air Force Regional Hospital at Eglin Air Force Base in Florida. The following physicians were elected to the Waverly Municipal Hospital medical staff: **Dr. Lee Fagre**, president; **Dr. William Hall**, vice president; and **Dr. David MacMillan**, secretary/treasurer. **Dr. George Hogenson** was recently honored at an open house for his 40 years of family practice in Eagle Grove. **Dr. Michael Bird** has joined the staff of Family Practice Medical Clinic in Ames. Dr. Bird received the M.D. degree from the U. of I. College of Medicine and completed



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a residency at Broadlawns Medical Center, Des Moines. **Dr. Stephen Wilbur** has joined Fort Dodge Medical Center. Dr. Wilbur received the M.D. degree from the University of Kansas School of Medicine, Lawrence-Kansas City, Kansas and will practice internal medicine and oncology/hematology. **Dr. Martin Meindl** has joined the Pediatric and Adolescent Clinic in Mason City. Dr. Meindl previously practiced in Creston. **Dr. Mary Hennessy** has joined the Women's Health Center in Mason City. Dr. Hennessy was previously associated with the Mental Health Center of North Iowa, also located in Mason City. **Dr. Philip McLaughlin** has retired after 33 years of family practice in Coralville. Dr. McLaughlin received the M.D. degree at the U. of I. College of Medicine. **Dr. Deborah Ann Turner** has joined Midwest Gynecologists, P.C., Davenport. Dr. Turner received the M.D. degree from the U. of I. College of Medicine and served a residency at U. of I. Hospitals and Clinics. Dr. Turner previously was Assistant Professor of Ob/Gyn at U. of I. Hospitals. **Dr. Monzer Abu-Yousef**, Iowa City, was recently named a fellow of the American College of Radiology. **Dr. Scott Marrs** and **Dr. Thomas Pattee** have begun practice with Associated Medical Arts in Waterloo. Both physicians received the D.O. degree from the University of Osteopathic Medicine and Health Sciences, Des Moines and completed a residency at the Waterloo Family Practice Program.

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## Deaths

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**Dr. Preston Gibson**, 86, Bettendorf, died July 15. Dr. Gibson received the M.D. degree from the U. of I. College of Medicine and practiced in Davenport until his retirement in 1983. He was a life member of the Iowa Medical Society.

**Dr. Arthur Cloud**, 66, Ames, died August 5 at Mary Greeley Medical Center in Ames. Dr. Cloud received the M.D. degree from Tufts University School of Medicine, Boston, Massachusetts and was assistant director for student health services, Iowa State University, at the time of his death.

**Dr. Donald Wiltse**, 51, Mason City, died September 2. Dr. Wiltse received the M.D. degree from the U. of I. College of Medicine and completed a residency there also. He was an anesthesiologist with St. Joseph Mercy Hospital, Mason City.

**Dr. Robert Porter**, 80, Des Moines, died August 31. Dr. Porter received the M.D. degree from the U. of I. College of Medicine and practiced general medicine for 50 years.

**Dr. Ellis Schlichtemeier**, 77, Spencer, died September 7 at Spencer Municipal Hospital. Dr. Schlichtemeier received the M.D. degree from the University of Nebraska College of Medicine, Omaha, Nebraska and practiced for 20 years in Spencer. He retired in 1989 after 45 years as a physician.

**Dr. Charles Brummitt**, 97, Centerville, died September 6 at the long-term care unit of St. Joseph's Mercy Hospital, Centerville. Dr. Brummitt received the M.D. degree from Northwestern University Medical School, Chicago, Illinois and practiced in Centerville for 40 years, retiring in 1963. He was a member of the American College of Surgeons.

**Dr. John Lutton**, 92, Sioux City, died August 19. Dr. Lutton received the M.D. degree from the University of Nebraska College of Medicine, Omaha, Nebraska and practiced in Sioux City for 30 years, retiring in 1974.

**Dr. Carroll Adams**, 80, Mason City, died August 2 at North Iowa Medical Center, Mason City. Dr. Adams received the M.D. degree from the University of Nebraska College of Medicine, Omaha, Nebraska and practiced in Mason City until his retirement in 1981. He was a member of the American Academy of Orthopedic Surgeons, a charter member of the American Society for Surgery of the Hand and a life member of the Iowa Medical Society.

**Dr. William Wall**, 84, Des Moines, died August 8. Dr. Wall received the M.D. degree from the University of Minnesota Medical School, Minneapolis, Minnesota and served a residency at Veterans Hospital, Lincoln, Nebraska. He practiced at the VA Hospital, Des Moines for more than 37 years and was medical director of the Des Moines Plasma Center.



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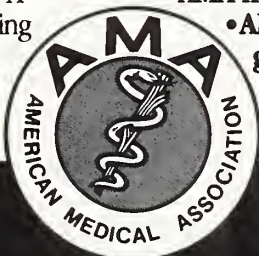
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## Sight Saving Projects

**I**OWA'S OPHTHALMOLOGISTS ARE INVOLVED in two nationwide projects which have the same goal — preserving eyesight.

Since it began in 1986, the National Eye Care Project has received over 2,632 calls from Iowa residents and has referred over 1,734 needy elderly to volunteer ophthalmologists. The project is sponsored by the Iowa Academy of Ophthalmology and the Foundation of the American Academy of Ophthalmology.

"It is estimated that over half of all blindness is preventable, and elderly are particularly vulnerable to eye disease," comments Russell Widner, M.D., president of the Iowa Academy of Ophthalmology.

Any disadvantaged elderly person who needs medical eye care can call a toll-free helpline, 1-800-222-EYES, for assistance. So far in Iowa, the following numbers of potentially blinding eye diseases have been detected and treated in 980 patients.

The second project demonstrates the ophthalmologists further commitment to reducing the incidence of blindness from diabetic retinopathy. The American Academy of Ophthalmology, which represents the nation's 13,000 practicing ophthalmologists, is embarking on a multiyear phased program of professional and public education to address the complex issues involved in the eye care of diabetic patients. The new project is Elimination of Preventable Blindness from Diabetes by the Year 2000 (Diabetes 2000).

Ten million Americans have diabetes mellitus, but only about half of them know they have it. Diabetes is the leading cause of new blindness among Americans aged 20 to 74. Diabetic retinopathy alone accounts for at least 12% of new cases of blindness each year.

As its title implies, Diabetes 2000 will be a long-term project aimed at a specific disease

— diabetic retinopathy and its complications. New advances and treatment guidelines for the medical and surgical treatment of diabetic eye disease will be emphasized through continuing education of ophthalmologists, other physicians, ophthalmic allied health professionals, ophthalmology residents and medical students. Educational programs for diabetic patients and the public will be developed.

Diabetes 2000 provides the means to close the gap between advances in research and changes in treatment patterns. The Academy's goal is to focus attention on the importance of early diagnosis and timely treatment of diabetic retinopathy based on the important advances of the last 5-10 years.

Because of the ambitious goal and long time frame, many other medical organizations and public groups are expected to become involved during the project's various phases. Representatives from various medical specialties, government agencies and other organizations devoted to diabetic problems have been invited to participate in the project.

Diabetes 2000 will stress the involvement of other physicians and medical specialty organizations in the planning and implementation of the project.

Through these two important projects, millions of dollars will be saved if timely medical and laser surgical treatment of eye disease are instituted for patients at risk. The savings in lost productivity and human suffering will be even greater.

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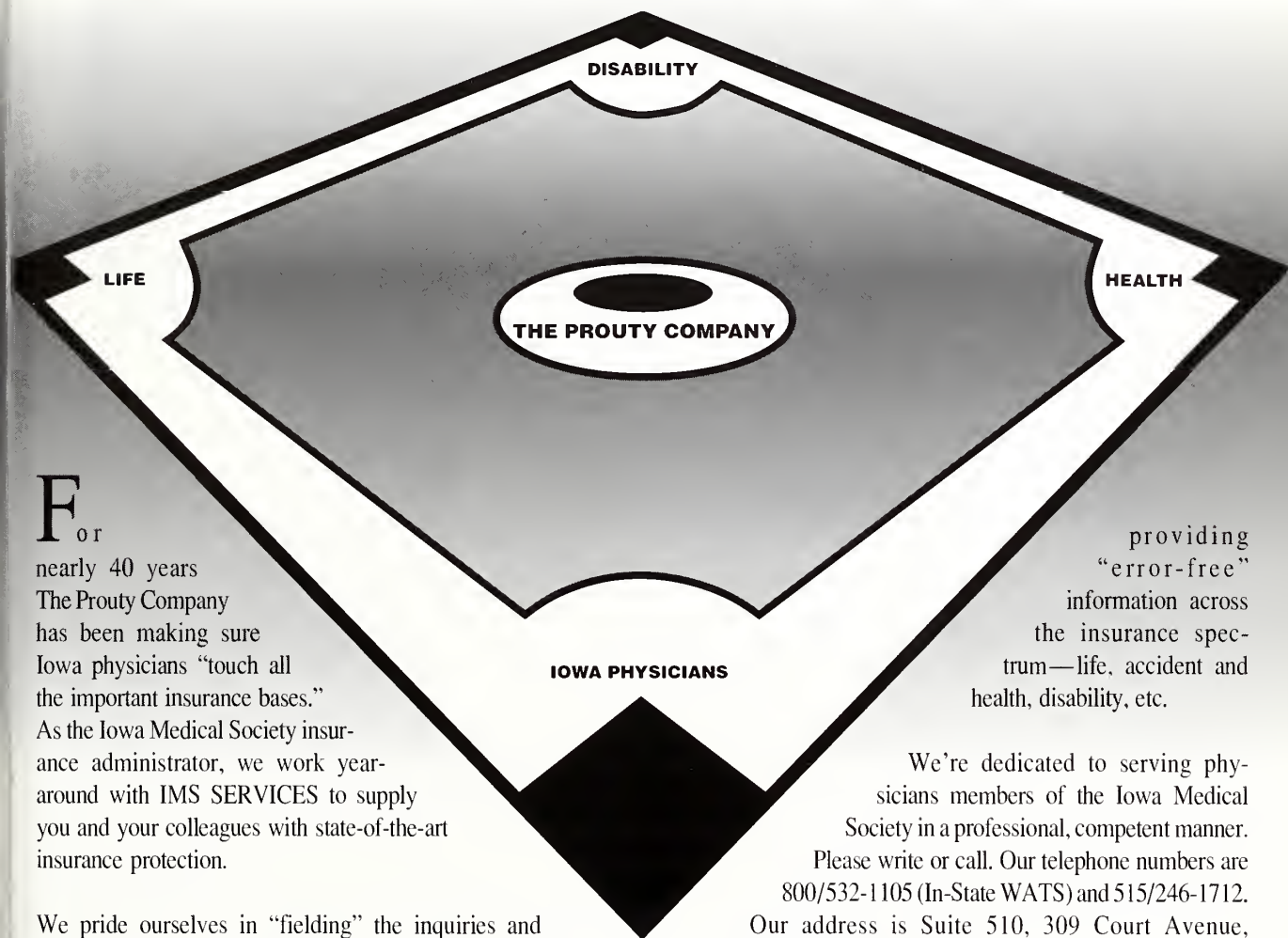
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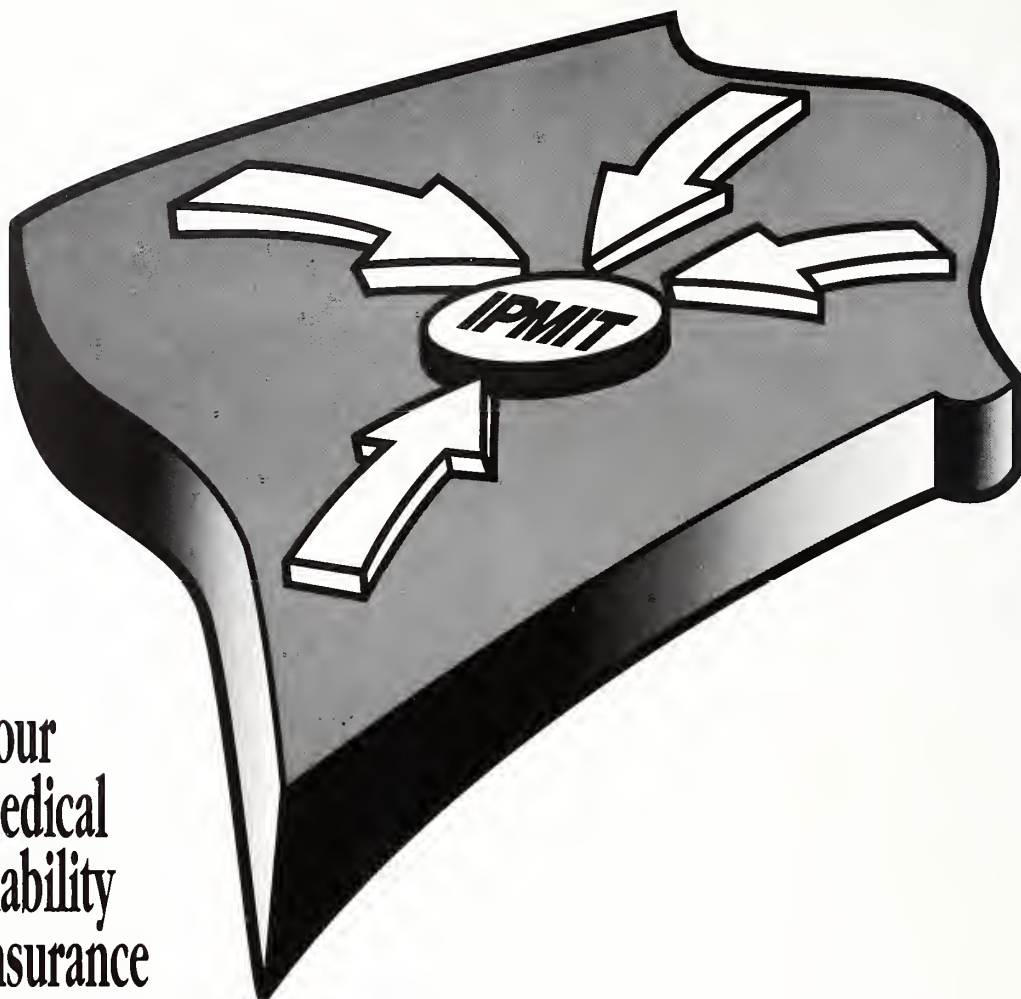
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Volume 80 Number 12

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December 1990

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## In This Issue

### Departments

- 555 President's Privilege
- 563 Questions and Answers
- 573 Letters to the Editor
- 575 The Editor Comments
- 576 CME Notebook
- 579 IFMC Case Notes
- 580 Iowa Department of Public Health
- 583 About Iowa Physicians
- 584 Classified Advertising
- 586 Advertising Index
- 586 Index to Volume LXXX
- 588 Physicians' Directory
- 590 In the Public Interest

*A state representative discusses health care issues on the minds of Iowa legislators in this month's 'Questions and Answers,' page 563.*

### Special Articles

- 556 **OB Care Shortage in 28 Counties, Say Survey Respondents**  
*Iowa physicians say pregnant women in some areas of the state are having an increasingly difficult time finding obstetrical care. Results of an IMS survey reveal why.*
- 560 **Traumatic Head and Spinal Cord Injury in Iowa**  
*Do we need stricter laws to protect Iowans from serious injuries? These authors believe the statistics speak for themselves.*  
**Laurence Fuortes, M.D., Kirk Phillips, M.S.W., Joann Muldoon, M.S., M.A.**

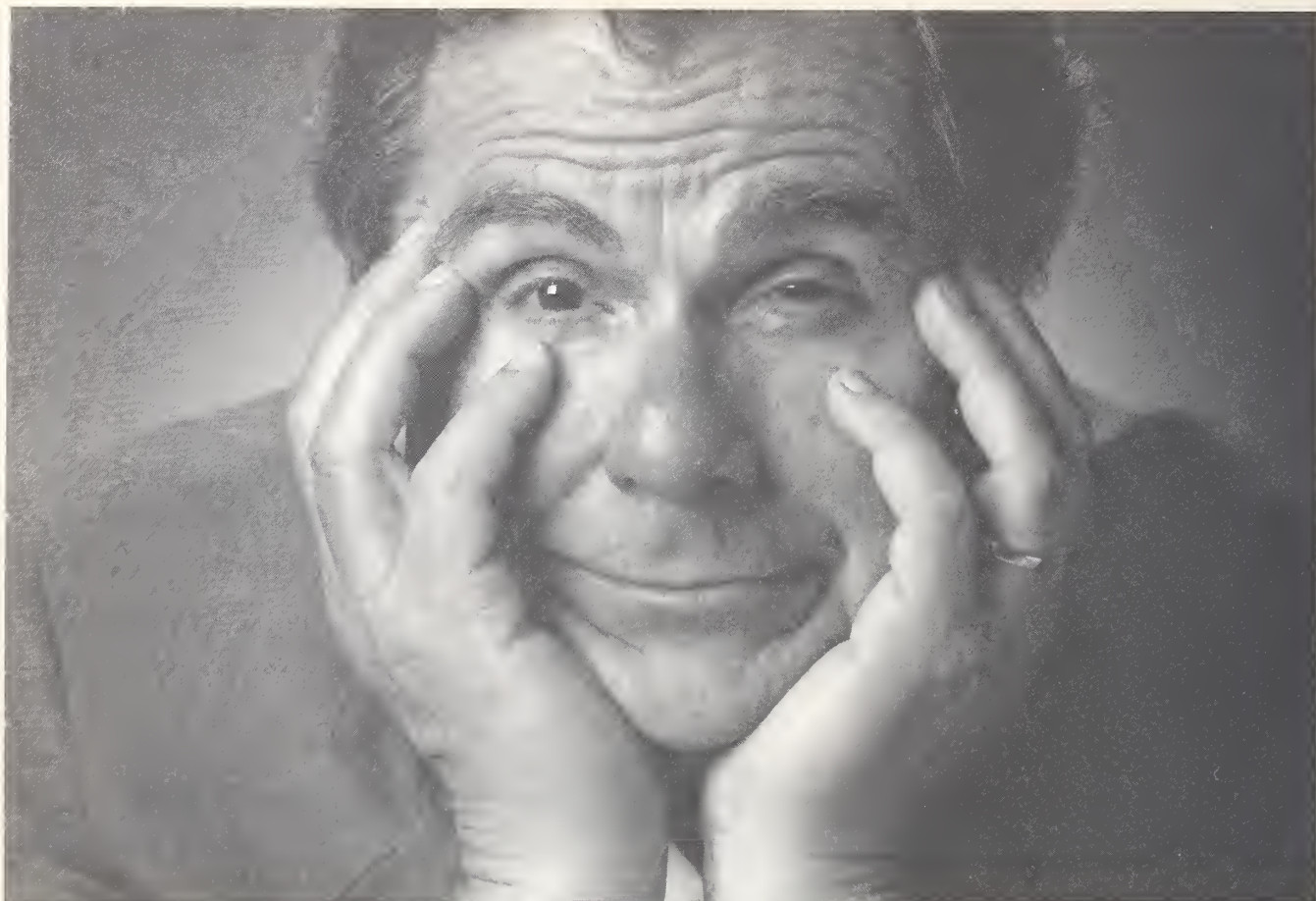
### Scientific Article

- 567 **Moss Nasogastric Tube and Treatment of a Perforated Esophagus**  
*A perforated esophagus does not always have to be treated surgically.*  
**Phillip Caropreso, M.D., H. Fred Oakley, M.D., Charles Brindle, M.D.**

### About the Cover

Dr. Gerald Howe, a retired Iowa City orthopedist, took this photograph of a young polar bear exploring the shores of Hudson Bay in Cape Churchill, Manitoba in early November. The bear was searching for his principal food source — the ringed seal — when Dr. Howe took his photo from a "tundra buggy" using a telephoto lens. Beginning in January, the University Athletic Club in Iowa City will display a collection of photographs Dr. Howe took in Eastern Africa. Dr. Howe retired in 1988, partly to give himself more time for travel and wildlife photography.





# Mercy's Sleep Referral Program Can Shed Light On Sleep Apnea.

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Dr. Holwick outside of hospital where she practices as a civilian traumatologist



Dr. Holwick in operating room at Letterman Army Medical Center.

## JANN L. HOLWICK, M.D.

General and Trauma Surgeon.  
Captain, U.S. Army Reserve.

**EDUCATION** University of Southern California, B.S.;  
University of California School of Medicine.

**RESIDENCY** Harbor General Hospital—UCLA  
Medical Center.

**HOSPITAL AFFILIATIONS** St. Luke Hospital;  
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*Am Fam Phys* 1987;36:133-140

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Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

#### Precautions:

- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of non-susceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

#### Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:

- Hypersensitivity reactions have been reported in about 1.5% of patients and include morbilliform eruptions (1 in 100), Pruritus, urticaria, and positive Coombs' tests each occur in less than 1 in 200 patients. Cases of serum-sickness-like reactions have been reported with the use of Ceclor. These are characterized by findings of erythema multiforme, rashes, and other skin manifestations accompanied by arthritis/arthralgia, with or without fever, and differ from classic serum sickness in that there is infrequently associated lymphadenopathy and proteinuria, no circulating immune complexes, and no evidence to date of sequelae of the reaction. While further investigation is ongoing, serum-sickness-like reactions appear to be due to hypersensitivity and more often occur during or following a second (or subsequent) course of therapy with Ceclor. Such reactions have been reported more frequently in children than in adults with an overall occurrence ranging from 1 in 200 (0.5%) in one focused trial to 2 in 8,346 (0.024%) in overall clinical trials (with an incidence in children in clinical trials of 0.055%) to 1 in 38,000 (0.003%) in spontaneous event reports. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy; occasionally these reactions have resulted in hospitalization, usually of short duration (median hospitalization = two to three days, based on postmarketing surveillance studies). In those requiring hospitalization, the symptoms have ranged from mild to severe at the time of admission with more of the severe reactions occurring in children. Antihistamines and glucocorticoids appear to enhance resolution of the signs and symptoms. No serious sequelae have been reported.
- Stevens-Johnson syndrome, toxic epidermal necrolysis,


and anaphylaxis have been reported rarely. Anaphylaxis may be more common in patients with a history of penicillin allergy.

- Gastrointestinal (mostly diarrhea): 2.5%
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.
- Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertonia, dizziness, and somnolence have been reported.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1% and, rarely, thrombocytopenia and reversible interstitial nephritis.

#### Abnormalities in laboratory results of uncertain etiology.

- Slight elevations in hepatic enzymes.
- Transient lymphocytosis, leukopenia, and, rarely, hemolytic anemia and reversible neutropenia.
- Rare reports of increased prothrombin time with or without clinical bleeding in patients receiving Ceclor and Coumadin concomitantly.
- Abnormal urinalysis; elevations in BUN or serum creatinine.
- Positive direct Coombs' test.
- False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinistix<sup>®</sup> tablets but not with Tes-Tape<sup>®</sup> (glucose enzymatic test strip, Lilly).

PA 8791 AMP (021490 LRI)  
Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285.

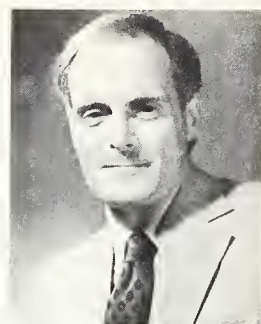
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## President's Privilege

Robert D. Whinery, M.D.



## Tis the Season To Be Active

**T**HIS PRESIDENT'S PRIVILEGE WAS INTENDED to be joyous and express the spirit of the Christmas season. However, this month's magazine is devoted to legislation and the upcoming Iowa General Assembly. Now, there's a subject I can't let pass without a comment.

In many ways, all of medicine's current problems are related to legislation. We must reflect on that and understand that the next set of laws may affect us even more.

When doctors became involved with Medicare, they became involved with the government. Due to the very nature of this program, the legislators became our regulators. It's a simple economic fact. It took years, but eventually the entire problem has become one of economics — not quality.

Yes, you know all of this already. What I'm trying to say is that I'm more concerned about possible future changes than I am about what legislation has done in the past. The momentous decisions that are yet to be made relate to the quantity of medical care — how much and for whom.

When does modern technological, innovative medicine become unrealistic, impractical and beyond the reasonable use of available monies? That's a giant question and no single physician is able or wants to decide. But please, don't let the medical community look away and leave the decision to governmental legislation. It's up to physicians in organized medicine — i.e., state, national and specialty societies — to make this a number one priority. It's called rationing (now, I've said it ) and it is going to happen.

We can't afford every modern miracle for everyone, it's simply too costly. Medical people are the only ones capable of making these decisions — not legislators. Please don't skirt this duty only to complain about bad laws later.

Happy Holidays!

*Robert D. Whinery, M.D.*

Robert D. Whinery, M.D.  
President



# OB Care Shortage in 28 Counties, Say Survey Respondents

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*For the past several years, the IMS has been receiving reports of shortages of obstetrical services in various Iowa locations. An IMS survey of Iowa physicians yielded some telling results.*

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**A** VAILABILITY OF OBSTETRICAL SERVICES in Iowa has been a concern of physicians, policymakers and the public over the last several years and that concern continues to grow. Serious shortages are developing in various parts of the state when one or two physicians retire, leave their community or discontinue providing obstetrical care.

In late 1989, in response to reports of local shortages, the Iowa Medical Society (IMS) developed a survey of Iowa physicians relating to availability of obstetrical services. The 1990 Iowa Physicians Survey was mailed on December 29, 1989 to all actively practicing family physicians and obstetricians/gynecologists in Iowa. The survey was conducted in conjunction with the Iowa Osteopathic Medical Association. A total of 1,487 surveys were mailed to M.D.'s and D.O.'s; 658 surveys were returned in time to be compiled, a 44% response rate. Results should be applied only to those physicians who responded, as there may be differences between those who responded and those who did not.

## *Physicians Who Provide OB Care*

Five hundred ninety-nine physicians responding indicated they had provided OB services after finishing their training; 521 indicated they had provided OB services in 1981 or later. Three hundred thirty (63%) of that group indicated they were still providing OB services in 1989. On the average, those who currently provide OB services plan to discontinue providing that type of care at age 54, but this varied by specialty and age. Family physicians overall plan to discontinue delivering babies at age 53. However, family physicians between the age of 35 and 45 plan to discontinue deliveries on the average at age 50.

Many physicians indicated they had made changes in their practice as a result of increases in their OB patient load. For family physicians, the changes made in order of number of responses were:

1) Decreased time off after being on call; 2) Longer office hours; 3) Delays in initial OB patient visits as a result of backlog of cases (average delay of one week); 4) Other responses.

For obstetricians, the responses were: 1) Longer office hours; 2) Decreased time off after being on call; 3) Delays in initial OB patient visits (average delay of 1.5 weeks); 4) Other responses.

One hundred seventy family physicians and 42 obstetricians were looking for a partner to provide OB care.

## Physicians Who Do Not Provide OB Care

Physicians who do not currently provide OB services were asked their reasons for not providing OB care. Those reasons in order of number of responses are as follows with 1 receiving the most responses: 1) High costs of liability insurance; 2) Risk of lawsuit over long period creates too much stress; 3) Uncertain hours; 4) Prefer other type of practice; 5) No one to share OB call with; 6) Too few babies born in practice area to make it economically feasible; 7) Patients generally past childbearing years; 8) Patients prefer to go to larger town for OB services.

## Medicaid Patients

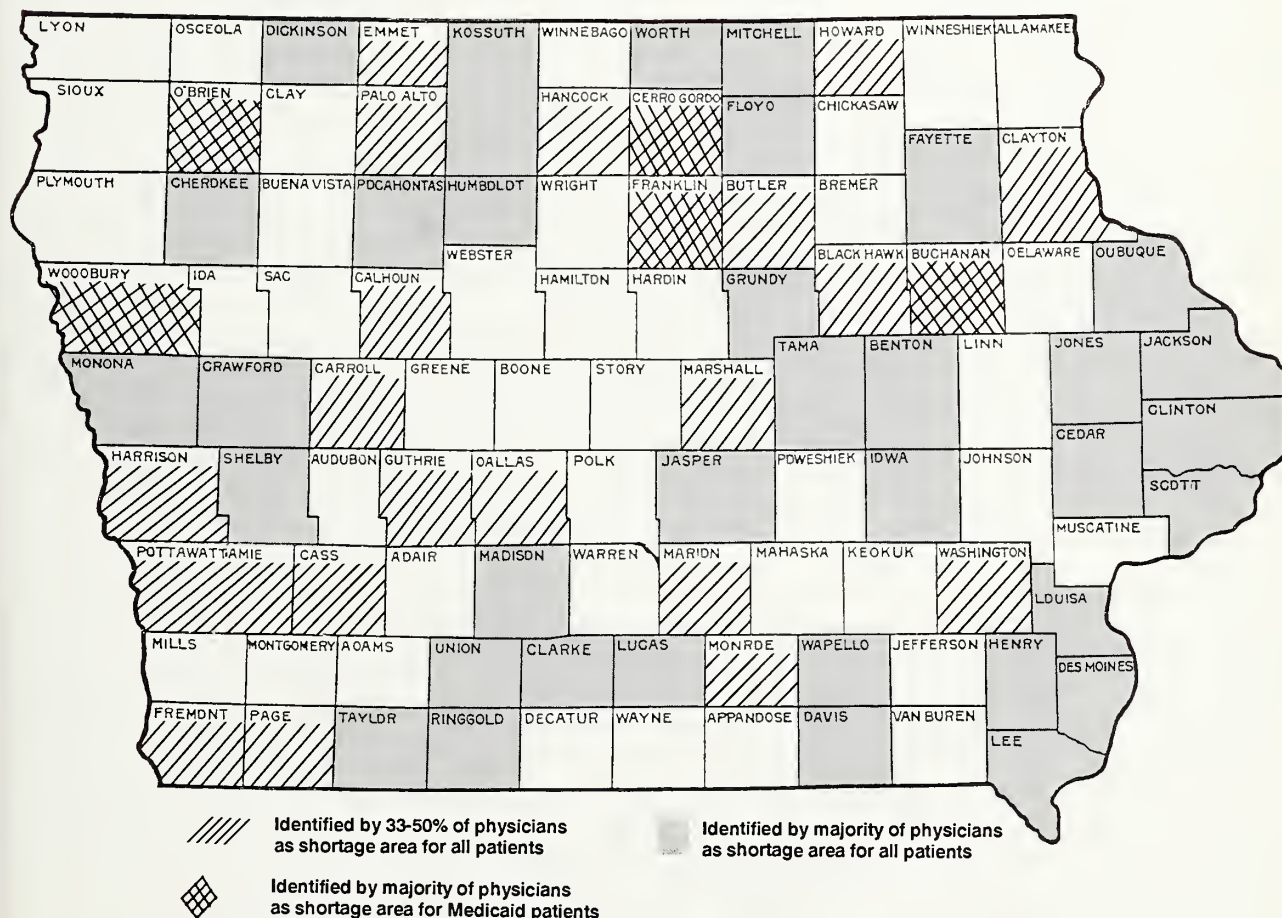
A large majority of physicians indicated they take Medicaid patients. Although there was some variation by specialty, 546 (83%) of respondents indicated they see Medicaid patients. Eighty-nine percent of family phy-

sicians take at least some Medicaid patients, while 76% of obstetricians responding indicated they take Medicaid patients. Approximately 60% of both family physicians and obstetricians who serve Medicaid patients indicate the percentage of patients on Medicaid they see has increased either significantly or slightly over the last several years.

## Shortage of Obstetrical Services

Half of the physicians responding indicated they believe there is a shortage of obstetrical services in their county for at least some patients. Thirty-five percent believe there is a shortage for all patients and 15% believe there is a shortage for Medicaid patients only. Obstetricians appear to be somewhat more likely than family physicians to perceive a shortage of obstetrical services in their area. Thirty-eight percent of obstetricians believe there is a shortage of OB services for all patients in their area and an addi-

(Continued next page)





tional 25% believe there is a shortage of OB services for Medicaid patients only.

Because obstetricians take many cases referred by family physicians and because more family physicians appear to be discontinuing obstetrical care at an early age, obstetricians may be becoming overburdened in some areas.

The majority of family physicians practicing in 28 counties believed there was a shortage of obstetrical services at the time of the survey. An additional 7 counties were identified as shortage areas for Medicaid patients. Obstetricians added 1 additional county to the list of shortage areas for all women and 2 more counties as having a shortage for Medicaid patients only.

## Demographic Information

The age of respondents were as follows:

Age	Number of FP's	Number of OB/GYN
Under 35	101	6
35-44	207	32
45-54	85	23
55-64	91	17
65+	64	4
<i>Specialty</i>		
Family or general practice		554
Obstetrics/gynecology		71
Gynecology only		11

Additional information about survey results is available upon request from IMS headquarters.

## 'I See a Crisis Coming'

*Editors' Note: Following is a representative sampling of written comments from physicians who responded to the Society's recent survey on the availability of obstetrical care in Iowa.*

"I see a crisis coming. Not many new docs are delivering and the rest of us are aging."

"I have met with our local state legislators over the past year to beat the drum to solve the liability crisis as a requirement of access to care for our population. I failed and will now leave the state."

"Not all OB/GYN residencies are producing and encouraging physicians to pursue private practice. Nobody wants to do OB, "take the heat" and work 60-80 hours a week, be on call and always produce perfect results. Please help us recruit! I can't hang on much longer!"

"We are dependent on surgeons for C-sections since ob/gyn specialists are too distant and unavailable for urgent C-sections."

"Every time I have been sued it has been on an OB consult for a Medicaid patient being cared for by a family practice physician. I feel abandoned by the legislature. Don't expect my help when they ask me to see more Medicaid patients."

"Almost all family practitioners have stopped delivering. We get several phone calls weekly from women seeking OB care."

"Crisis situation! Our maternal health center closed when they lost their full time OB/GYN due to the work load. Hundreds of women were looking for care."

"It's impractical for a new doctor to do OB because there's no one to share call."

"There used to be 8 doctors doing OB, now there's only 4. Help!"

"As far as I know, there's only 1 doctor in town who will take new Medicaid OB patients."

"Any physician who is willing to do obstetrics in this state deserves our support and admiration or needs a psychiatric examination."

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# Traumatic Head and Spinal Cord Injury in Iowa

LAURENCE FUORTES, M.D.

Iowa City, Iowa

KIRK PHILLIPS, M.S.W.

JOANN MULDOON, M.S., M.A.

Des Moines, Iowa

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*Iowa's head injury statistics support the need for a helmet law and stricter drunk driving laws, say these authors.*

---

EVERY YEAR MORE THAN 80,000 Americans suffer permanently disabling injury of the brain or spinal cord. With the exception of inner city studies, motor vehicle crashes account for the majority of such injuries and involve predominantly young persons. Motorcycle accidents account for 15% of all motor vehicle deaths. The second leading cause of brain injury in most studies is falls in the elderly population.<sup>1</sup>

Traumatic head and spinal cord injuries more often require extensive inpatient hospitalization and multiplicity of therapeutic and extended care services. Dramatic life changes occur, and high levels of dependency may

be incurred for the remainder of a patient's life.

## Methods

Patient records were obtained from the Iowa Central Head Injury Registry. These records were derived from discharge summary abstracts for 1983-1986 in Iowa hospitals participating in the Health Services Data System (approximately 65% of Iowa hospitals). Data from the Iowa Department of Transportation are reported for temporal trends in traffic fatalities.

## Results

The highest age specific incidence of head injury hospitalization for Iowans has consistently occurred in the 15-19 age group as shown in Table 1. These findings are consistent with those of other U.S. studies.<sup>2</sup> Except for the 0-4 age group, there appears to be a trend towards declining rates of trauma hospitalization in all ages.

An average of 41 Iowans age 0-15 years died each year of motor vehicle injuries during the period shown in Table 2. The rate of motor vehicle deaths, however, declined dramatically from 1982-1985. We believe higher awareness of child restraint effectiveness and the eventual passage of Iowa's law have strongly affected the death rates among children as evidenced by Table 3.

Between 1967 and 1976, 40 states enacted laws requiring the use of motorcycle helmets. Twenty-seven states repealed their helmet laws after 1976 and motorcyclist fatality rates promptly rose to rates nearly equal

---

Dr. Fuortes practices with the Dept. of Preventive Medicine, University of Iowa Occupational Health Services. Kirk Phillips is a consultant in small area analysis for the Iowa Medical Society. Joann Muldoon is the manager of the Central Head Registry with the Iowa Department of Public Health.

**TABLE 1**  
**AGE-SPECIFIC RATES OF HEAD INJURY HOSPITALIZATIONS 1984-1986**

	<i>Hospital Admissions Per 100,000 By Age</i>						<i>Total</i>
	<i>0-4</i>	<i>5-14</i>	<i>15-19</i>	<i>20-34</i>	<i>35-64</i>	<i>65 +</i>	
(1984 abstracts)	43.7	193.0	244.7	211.1	96.4	188.7	159.1
(1985 abstracts)	61.1	158.9	269.0	161.8	79.5	143.4	133.1
(1986 abstracts)	81.3	139.1	241.0	132.3	72.8	124.2	117.3

**TABLE 2**  
**MOTOR VEHICLE ACCIDENTS AND DEATHS PER 100 MILLION MILES DRIVEN IN IOWA, 1970-1986**

<i>Year</i>	<i>Accidents per 100 million miles</i>	<i>Deaths per 100 million miles</i>
1970	547.0	5.68
1971	525.3	4.99
1972	536.7	5.11
1973	546.2	4.6
1974	528.2	3.97
1975	531.1	3.78*
1976	531.4	4.26
1977	461.3	3.36
1978	468.6	3.34
1979	458.7	3.45
1980	425.0	3.42
1981	364.8	3.27
1982	338.3	2.64
1983	310.4	2.59
1984	293.4	1.96
1985	307.3	2.28**
1986	301.2	2.15***

\* 55 speed limit

\*\* Child restraint, 21 yr. drinking age

\*\*\* Seat belt law

to those prior to enactment.<sup>3</sup> The effect of the helmet law on motorcycle fatalities in Iowa is evident from Table 4. The Iowa helmet law went into effect September 1, 1975 but was repealed July 1, 1976. Despite being short-lived, the helmet law had a dramatic effect on fatalities.

## Discussion

More than 75,000 Americans each year sustain brain injuries that result in long-term disability; 2,000 remain in permanent vegetative states. Over 6,000 Americans are rendered quadriplegic or paraplegic due to injuries. Improvements in emergency medical services and trauma care have resulted in in-

**TABLE 3**  
**PERSONS 15 YEARS & YOUNGER INVOLVED IN FATAL MOTOR VEHICLE ACCIDENTS IN IOWA**

	<i>Number of Persons Killed (Age in Years)</i>				<i>Fatal Accident Rate</i>
	<i>&lt; 4</i>	<i>5-9</i>	<i>10-14</i>	<i>15</i>	
1980	14	18	19	12	2.0
1981	18	14	13	11	2.8
1982	9	9	20	8	3.1
1983	5	6	18	5	1.7
1984	9	11	12	5	1.4
1985	4	7	11	4	0.8
1986	8	6	5	9	1.1

**TABLE 4**  
**EFFECTS OF THE HELMET LAW ON MOTORCYCLE FATALITIES**

<i>Month</i>	<i>Number of Fatalities</i>		
	<i>Before Law (9/74-6/75)</i>	<i>During Law (9/75-6/76)</i>	<i>After Repeal (9/76-6/77)</i>
September	12	2	8
October	1	5	5
November	3	2	1
December	—	—	1
January	—	—	—
February	1	—	—
March	—	4	1
April	2	2	8
May	7	8	13
June	19	11	9
TOTAL	45	34	47
Average fatality rate (per 10,000 registrations)	3.4	2.2	3.14

creased survival of persons with nervous system as well as musculoskeletal, visceral and burn injuries.<sup>4</sup> The need for rehabilitative services is therefore increasing. Appropriate acute care, rehabilitative services and after care can help improve quality of life

*(Continued next page)*



and functional status and diminish preventable disabilities.<sup>5</sup>

Neurologic injury warrants extensive restorative and rehabilitative care. Patient tracking through regional spinal cord centers with adequate follow-up and support services has proven efficacious and cost-effective. Rehabilitation results in self reliance and deinstitutionalization for up to 75% of patients.<sup>6</sup> Rehabilitation and public health experts estimate that expenditures in rehabilitation will save subsequent government expenditures for health care and custodial care.

Previous studies have documented motor vehicle and motorcycle injuries as the predominant cause of head injury fatalities. Speed limits, safety belt laws, drunk driving laws and voluntary prevention programs have been among the many attempts historically used to affect a reduction in traffic injury. A strong association has been drawn between the use of helmets and reduced injury and deaths.<sup>7</sup> The Iowa Legislature should reinstate laws requiring the use of motorcycle helmets and adopt new legislation requiring the use of moped helmets. Given the young average age of motorcycle and moped riders, we believe laws have a stronger influence on the use of helmets than do individual judgments. Given the strong association between use of alcohol and drugs and traffic injuries, the Iowa Legislature should adopt stricter drunk driving laws.

## Central Registry

Data on Iowans presented in this study which are specific to head injury are limited to hospitalization rates (Table 1). Iowa motor vehicle fatality data (Tables 2, 3 and 4) are not just head injuries, since fatality data specific to head injuries were not available at the time of this study.

The Iowa Central Registry for Brain and Spinal Cord Injuries will soon add to its data base reports of all Iowa fatalities from brain and spinal cord injuries. These data will be obtained from the death certificates and medical examiner reports. The purpose of the Registry is to provide information on brain and spinal cord injuries to aid policy makers, physicians, educators, rehabilitation

service providers and researchers. Case reports are primarily collected from hospitals, physicians in the neurospecialties and death certificates.

The Registry is underfunded, receiving state appropriations of only \$11,000 in each of the fiscal years 1990 and 1991. For the current fiscal year the Registry has received an additional one time grant of \$57,000 from the Federal Centers for Disease Control. These funds are to be used to hire a full-time staff person. The Department of Public Health is seeking state funds to continue this position in fiscal year 1992.

With adequate funding and reporting (underreporting still occurs in some counties), a statewide registry for persons with traumatic brain and spinal cord injury will provide the information necessary to determine true incidence of head injuries and prognosis. Without such data, services will be allocated on the basis of recognized needs and will by necessity be delayed and palliative instead of preventive. The Registry should allow for the evaluation and assessment of current policies and proposed interventions in preventing neurologic injuries.

Information from or about the Central Registry and Registry reporting requirements can be obtained by calling (1-800/362-2736) or writing Joann Muldoon or Sheryl Deskin, the Iowa Department of Public Health, First Floor Lucas Building, Des Moines, Iowa 50319.

Increased funding is needed for public education programs which encourage the proper use of seat belts and helmets. The effectiveness of these programs should be carefully evaluated. The potential benefits to scores of Iowans would be an investment in Iowa's future and a cost-effective expenditure of state revenues.

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Rep. Johnie Hammond



# Adolescent Smoking and Uninsured Are Top Priorities

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*The author, Democratic state representative from Story County, discusses health care issues likely to come before the 1991 Iowa Legislature. Rep. Hammond was elected to the Iowa House in 1982 and serves as chair of Human Services Appropriations Subcommittee.*

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### What will be the major health issues in the upcoming legislative session?

- Notification of HIV status of persons brought to hospitals by rescue workers (police, fire, EMS) when significant exposure occurs. Past legislative response to this issue has included required education in universal precautions and state payment for HIV and hepatitis B blood tests.

- Scope of practice proposals including dispensing authority for physician assistants and licensure of physical therapist assistants.

- Most important, proposals by the Health Care Task Force, including incremental improvements in health care coverage of the uninsured. Medicaid coverage of the SSI-related elderly and disabled group, up to 100% of poverty, would help 5,500 Iowans become eligible without spend down and reduce administrative costs. A more aggressive policy on early, periodic screening, diagnosis and treatment (EPSDT) of Medicaid eligible children will be

considered. Some realistic expansion of maternal and child health clinics will probably be funded. We may also expand eligibility for Medicaid by exempting "tools of the trade" from resources.

- Adolescent smoking prevention.
- Certificate of Need legislation similar to the bill debated in 1989, which included certain physician's office equipment, added equipment such as helicopters, included lease-purchase arrangements for buildings and equipment for review by the Health Facilities Council.

- A possible effort to establish a professional licensure review commission which would provide data prior to legislative changes in scope of practice or mandated benefits.

- Creation of a state insurance pool for small employers, perhaps with some subsidy by the state, but with a delayed enactment date because of the tight state budget.

**In Iowa, there appears to be a shortage of physicians to provide obstetrical services for women in both rural and urban areas, particularly those on Medicaid. What are the chances of significant improvement in Medicaid reimbursement for OB services?**

Improving Medicaid reimbursement will provide a bit of incentive and indeed we have set OB reimbursement higher than for other medical care. Looking realistically at the budget, I doubt that we can improve reim-

*(Continued next page)*



bursement enough in FY 92 to have a great impact on physician availability. Medical malpractice is also a disincentive to serving Medicaid eligible pregnant women. Other states have assumed the liability of physicians when they are serving pregnant women on Medicaid. Or, the state agrees to underwrite the cost of any successful lawsuit.

The legislature should also focus on positive outcomes in Medicaid births by promoting prenatal care and a healthy life-style. I believe better outcomes would encourage more acceptance of Medicaid patients.

**Access to quality health care continues to command the attention of policy makers and the public. What do you see coming out of the Iowa General Assembly on this issue?**

Access is affected by the shortage of health care personnel, especially in rural areas. I believe we are going to have to look at the use of nurse-practitioners, midwives, physician's assistants and physical therapy assistants, working under carefully prescribed protocols, for delivery of some services where physicians and physical therapists are not readily available. With transportation systems no longer available in sparsely populated areas, elderly persons often have no way to get to a larger city. The PA or the RN can work with a physician in the larger community, consult as needed and provide appropriate care in routine matters. A physical therapist can evaluate and direct treatment, while the p.t. assistant is trained to give the treatments prescribed.

The second major issue is care of the uninsured. Because of budget concerns, I do not believe we will make dramatic changes in FY 92. I think it is likely that we will assist elderly, pregnant women or children who are under 100% of the federal poverty guidelines (\$10,560 for a family of 3). Some people in these categories continue to fall through the cracks because of eligibility criteria. We may also put in place a phase-in process for a state subsidized health insurance program for employees whose employers can not afford health care coverage.

We will also appropriate additional funds to well elderly clinics and maternal and child health clinics.

**As a leader of past legislative efforts to limit tobacco consumption, what is your opinion con-**

**cerning passage of additional legislation in 1991? What can physicians do to help?**

I am working with the Cancer, Heart and Lung Associations to develop an Adolescent Smoking Prevention Act aimed at keeping young people from becoming addicted to tobacco. The act includes a ban on vending machine sales of tobacco, stickers on display cases reminding the purchaser that it is illegal to sell to a minor, higher penalty for illegal sale to minors and better enforcement mechanisms, public education and prohibitions on the use of tobacco as a "reward" in state funded youth programs. I would welcome additional ideas for this legislation from physicians.

I also plan to amend our Medicaid plan to allow payment for smoking cessation programs (within a certain level of effectiveness). I want this targeted to pregnant women, but it would be available to all who are Medicaid-eligible.

I will need the help of the IMS membership and lobbyists to push for enactment of the Adolescent Smoking Prevention Act.

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# Moss Nasogastric Tube and Treatment of a Perforated Esophagus

PHILLIP CAROPRESO, M.D.

H. FRED OAKLEY, M.D.

Mason City, Iowa

CHARLES BRINDLE, M.D.

Sheffield, Iowa

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***Nonoperative treatment of perforation of the esophagus can have a successful outcome. In conjunction with other modalities, the Moss nasogastric tube most closely simulates benefits obtained by direct surgical intervention upon the perforated esophagus.***

---

**P**ERFORATION OF THE ESOPHAGUS is a grave condition with poor prognosis, in spite of advances in antibiotic therapy, total parenteral nutrition and surgery.<sup>1</sup> The number of perforations has increased with the increase in the

number of esophageal endoscopic, diagnostic and therapeutic maneuvers.<sup>2</sup>

Direct surgical treatment of the esophagus has been the standard of care. Direct suture repair, fistulization, drainage, double exclusion and resection have been employed in the treatment of perforated esophagus.<sup>3</sup> Factors which affect outcome include: intrinsic esophageal disease, size and location of the perforation and time lapse from injury to diagnosis and treatment.<sup>4</sup> Consequently, therapy should be individualized and flexible.

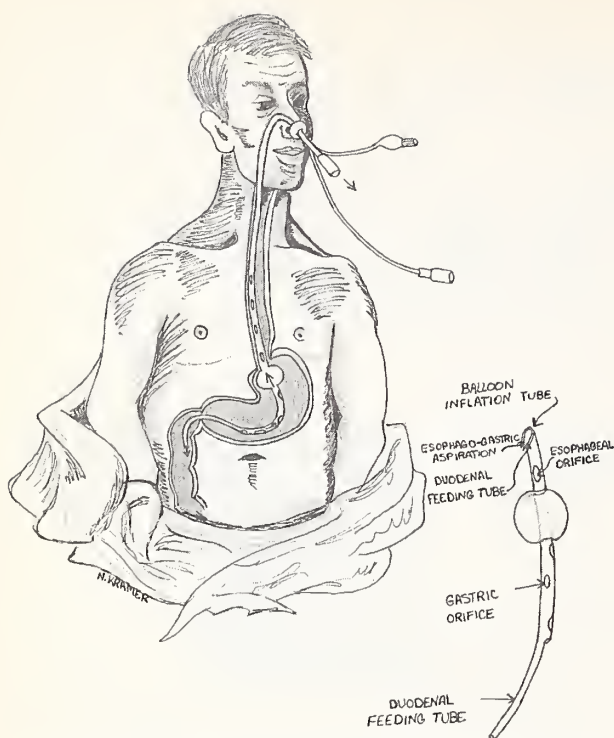
Conservative and nonoperative modalities have been employed with increasing frequency.<sup>5</sup> Various types of intraluminal tubes have been used.<sup>6</sup> This report recommends use of the Moss nasogastric tube as part of the nonoperative treatment of distal esophageal perforation. This tube is superior to other forms of esophageal intubation because it allows for enteral duodenal feedings and has drainage holes in both the stomach and the esophagus, in the vicinity of the perforation (Figure 1). In addition, it has an inflatable balloon which can occlude and exclude the stomach from the esophagus. In the case reported here, a post-operative esophageal perforation was treated in part with the Moss nasogastric tube.

On November 4, 1987, a 54-year-old white woman came in with complaints of fever, chills, cough, dyspnea and anorexia. She had been

---

Dr. Caropreso is a general surgeon and Dr. Oakley a diagnostic radiologist, both in Mason City. Dr. Brindle is a family practitioner in Sheffield.





**Figure 1.** The Moss nasogastric tube in treatment of a perforated esophagus.



**Figure 2.** Chest x-ray showing a large abscess cavity in the left thorax.

discharged from another hospital 3 days prior after having undergone a repeat transabdominal Nissen fundoplication. She had been placed on Ampicillin orally in treatment of an infiltrate in the left chest. This infiltrate was felt to represent a pneumonia.

Physical examination showed the patient to be gaunt with a temperature of 100. Examination of her chest revealed dullness at the left lung base and rales heard throughout the remainder of the lung field. There was a well healed midline surgical incisional scar in the epigastrium. Chest x-ray upon admission showed a large abscess cavity in the left thorax (Figure 2). An esophagogram revealed an esophageal perforation, with fistulization into a loculated empyema (Figures 3 and 4). A subclavian catheter was placed.

The laboratory tests revealed a white blood cell count of 27,900 and a hemoglobin of 9.9 grams. Through this subclavian, the patient was placed on broad spectrum parenteral antibiotics. She refused any direct surgical procedures upon her perforated esophagus. Consequently, 2 No. 32 French chest tubes were placed into the loculated empyema (Figure 5). Appropriate cultures were obtained, which subsequently grew yeast and streptococcus species. A Moss nasogastric tube was inserted, and the gastric balloon was inflated and drawn up against the cardioesophageal junction.

She was continued on parenteral antibiotics and total parenteral nutrition. By November 15, 9 days after the insertion of the chest tubes, methylene blue inserted through the Moss nasogastric tube did not present in the chest tubes. Subsequently, on November 18, 1987, an esophagogram showed complete healing of the perforation with no evidence of fistulization (Figure 6). The Moss nasogastric tube was withdrawn, but feeding was not initiated until December 7, 1987. By that time, both chest tubes had also been removed.

The patient continued to progress and was discharged on December 7, 1987. Outpatient follow-up revealed the patient has remained well without further evidence of complications, secondary to the esophageal perforation. She has gained weight, has no symptoms of reflux and swallows normally.

When properly indicated, or in cases such as this, when open surgical procedures are refused, nonoperative treatment can be success-

*(Continued page 570)*



Figures 3 and 4. Esophagogram revealing esophageal perforation.



Figure 5. French chest tubes were placed into the loculated empyema.



Figure 6. Esophagogram showed complete healing of the perforation.



ful. The design and function of a Moss nasogastric tube is such that both the esophagus and stomach can be simultaneously aspirated, while being excluded from each other. In addition, enteral feedings can also be provided. In cases of nonoperative management of esophageal perforations, it is appropriate to entertain the usage of the Moss nasogastric tube. In conjunction with other modalities, the Moss nasogastric tube most closely simulates benefits obtained by direct surgical intervention upon the perforated esophagus. Other intraluminal tubes lack the capabilities of draining the esophagus and stomach, while excluding the stomach from the esophagus with an inflated balloon.

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All material is subject to editing by the staff copy editor to assure clarity and good grammar and to conform to *IOWA MEDICINE* style and format. The author will receive galley proof of the paper prior to publication to check for inaccuracies, but no rewriting may be done after the manuscript is set in galleys.

Please follow the reference list style as published in current issues of *IOWA MEDICINE*. If the reference list contains more than 10 references, it will not be published with the paper but retained at *IOWA MEDICINE* and copied upon request.

Tables should be numbered and typed on a separate sheet. They should supplement, not duplicate, the text. Considering the production cost of tables and photos, only a limited number can be accepted with each article.

Photos should be black and white glossy prints. Some color photos are acceptable if the contrast is good.

Line drawings are acceptable if they are dark and can be reduced to fit in one column.

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## Letters to the Editor

### Quality Review

To the Editor:

Regarding Dr. Caplan's September, 1990 editorial "Caught Doing It Right," the small number of quality problems found appears out of proportion to the number of quality issues which are raised and then found not to have any merit. When one of these issues is raised, however, the physician involved has to spend a great deal of time and effort to obtain a review of the case and a revision in the decision.

These unfounded reviews on which so much time is spent constitute a great irritant and a waste of precious time for practicing physicians in Iowa. What the editorial confirms to me is that the entire review process is overly bureaucratic and simply not worth the money spent if in fact the level of low quality care is so vanishingly small. — *Eileen Robb, M.D., Monroe, Iowa.*

### Medicine is a Calling, Not a Business

Dear Sir:

I read Dr. Robert Whinery's column, "Is It Time To Change?" (October issue) with pleasure and pride. I am in agreement with the sentiments expressed by the president of the Iowa Medical Society.

In his American Urological Association lecture "Exasperation On Both Sides Of The Stethoscope," Dr. C. Everett Koop told the American College of Surgeons that now is the time for physicians to take a stand in order to be part of a high quality health care system for all citizens. Dr. Koop focused on the deteriorating image of American physician. He called for an improvement in peer review, to eliminate physicians that give the profession a poor reputation. Dr. Koop stressed that the doctor/patient relationship must be re-established. No longer should physicians permit themselves to be called providers and their patients to be referred to as consumers. Fostering such images are third parties, which interfere with the qual-

ity of doctor/patient relationships. "Cost control must not mean remote control," stated Dr. Koop.

Dr. Koop concluded the public needs to be reassured that "ours is a calling, not a business." Extraordinary commitment will be required to eliminate the exasperation experienced by both physicians and patients. No longer can practicing physicians stand by idly. We must look to the leadership of Dr. Whinery and Dr. Koop and support their initiatives. — *Philip Caropreso, M. D., Mason City.*

### Midwest AIDS Conference

"Midwest Conference on AIDS: Perspectives for the 1990s" will be held Thursday, December 13 at Wayne State University in Detroit, Michigan. CMEs for physicians have been applied for.

The conference will provide an update on the AIDS epidemic. Six international known authorities in the field will describe current patterns of the epidemic and discuss policy issues and the latest research on the biology and treatment of AIDS.

For more information, contact Nathan Linsk, director, Midwest AIDS Training and Education Center (MATEC), Chicago, Illinois, 312/996-1426.



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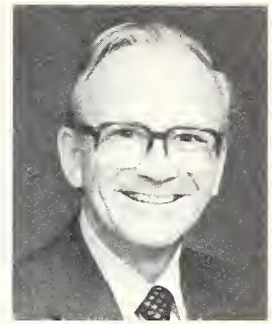
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## The Editor Comments

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Marion E. Alberts, M.D.



# Ocean to Ocean

**T**O US LANDBOUND MID-AMERICANS there is a mystique about the oceans and the foreign shores upon which the surf beats incessantly. It is difficult to project our concept of life into such diverse environments. The tropical climates I am enjoying as I cruise from the Pacific Ocean to the Atlantic via the Panama Canal will serve as a pleasant memory this winter. The mind and soul will be warmed by this memory during the bleak months amidst the ice and snow of Iowa.

However, there is more to it than that. The contrast of lifestyles becomes remarkable, almost startling. Along the pier at Acapulco the constant cry of "Money!" echoed from the time of our early morning arrival until the darkness of night. Small boys were swimming in the debris-laden waters imploring each passerby to throw coins into the water. Like so many ducks, the boys raced to retrieve the coins playfully tossed by tourists. Were these boys orphans from broken and unhappy homes? Were they acting independently, or under the control of a modern day Oliver Twist? Why were they not in school? Where did they go after sundown?

The poverty in Mexico, Costa Rica and Colombia was appalling. Yet, in the same areas there were striking examples of immense wealth — country clubs, beautiful mansions and well kept estates. Yet the obvious poverty — of the children, most striking to me — could not be overlooked. The evidence was pervasive and omnipresent.

We have many poverty stricken and homeless people in the United States, even

here in Iowa. The proportion of the population may not be so pronounced, but it is much too prevalent. Often we proud Americans seem reluctant to admit that some of our people live in poverty. However, we must.

In the past months there have been international conferences addressing the plight of millions of children throughout the world. Addressing the problem is one thing; action in a constructive manner is another. We must conquer the miserable lot of many children of the world. Concerted efforts by the World Health Organization banished small pox from our world. We should be able to achieve the same success for the benefit of the impoverished, starving and abused children.

Children are not stupid. In my years of practicing pediatrics I learned more and more of the veracity of children. Should they live to adulthood they will not cast aside the experiences of their childhood. They are our next generation. Are we to leave them a legacy of ill health, poverty and inadequate education?

December is the month of giving. We should hold foremost in our hearts and minds the plight of those less fortunate. The readers of this journal are by and large fortunate in belonging to a social and economic stratum considerably higher than most people. Let us not forget that. We must act accordingly. The plight of the unfortunate is a social responsibility to which we must be committed.—M.E.A.



Richard M. Caplan, M.D.



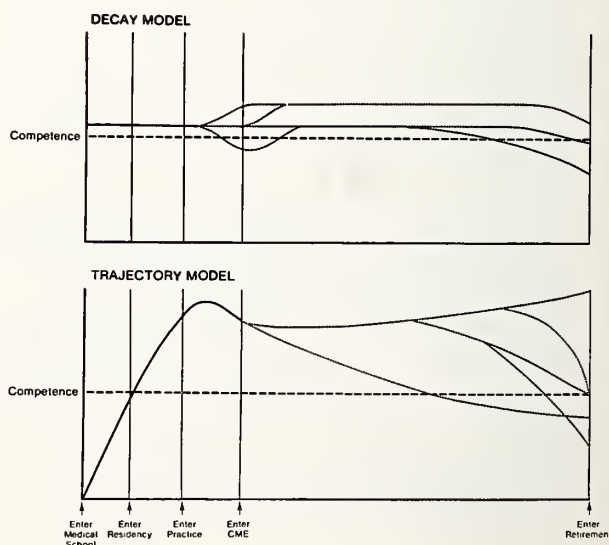
# Decay or Trajectory Model?

**A**H, THE TIDBITS ONE ENCOUNTERS! At the conclusion of a recent meeting of CME directors, I was leaving the auditorium and spied a partially crumpled sheet of paper that had pencilled on it 2 curves, one labelled DECAY MODEL and the other, TRAJECTORY MODEL. The x-axis was marked with the points "enter medical school," "enter residency" and "enter practice." Although I didn't suspect (until this very moment) that it might have been a cryptic guide to a buried treasure, still I was intrigued enough to give it a bit more attention.

Slowly I inferred what the author might have had in mind. The context of a CME-directors' meeting and the presentations and conversations going on there led me to amplify the crude sketch. I drew a horizontal line part way up the y-axis and called it "competence." I added 2 further points along the x-axis. Finally I modified the single curves of the original sketch to represent a family of curves, each one suggesting a variety of pathways that might be followed by individual physicians. That process could be carried on endlessly — in the mathematical sense at least. And the shape of the curves imply a set of attitudes about physicians and the role of education.

Next, I attempted to decide which of the 2 basic configurations more accurately conveyed the spirit (or the reality?) of medical education for most people and finally, which particular curve best matched my personal course over the years. Since I've not entered retirement yet, the final segment of my path vis-a-vis competence is especially murky. Of course I thought about tactics that would prevent or correct the nasty prospect of slipping below the level of competence.

All that was fun. I invite you to join me in a brief study of these curves as applied to yourself.



Dr. Caplan is Associate Dean for Continuing Medical Education at the University of Iowa College of Medicine.

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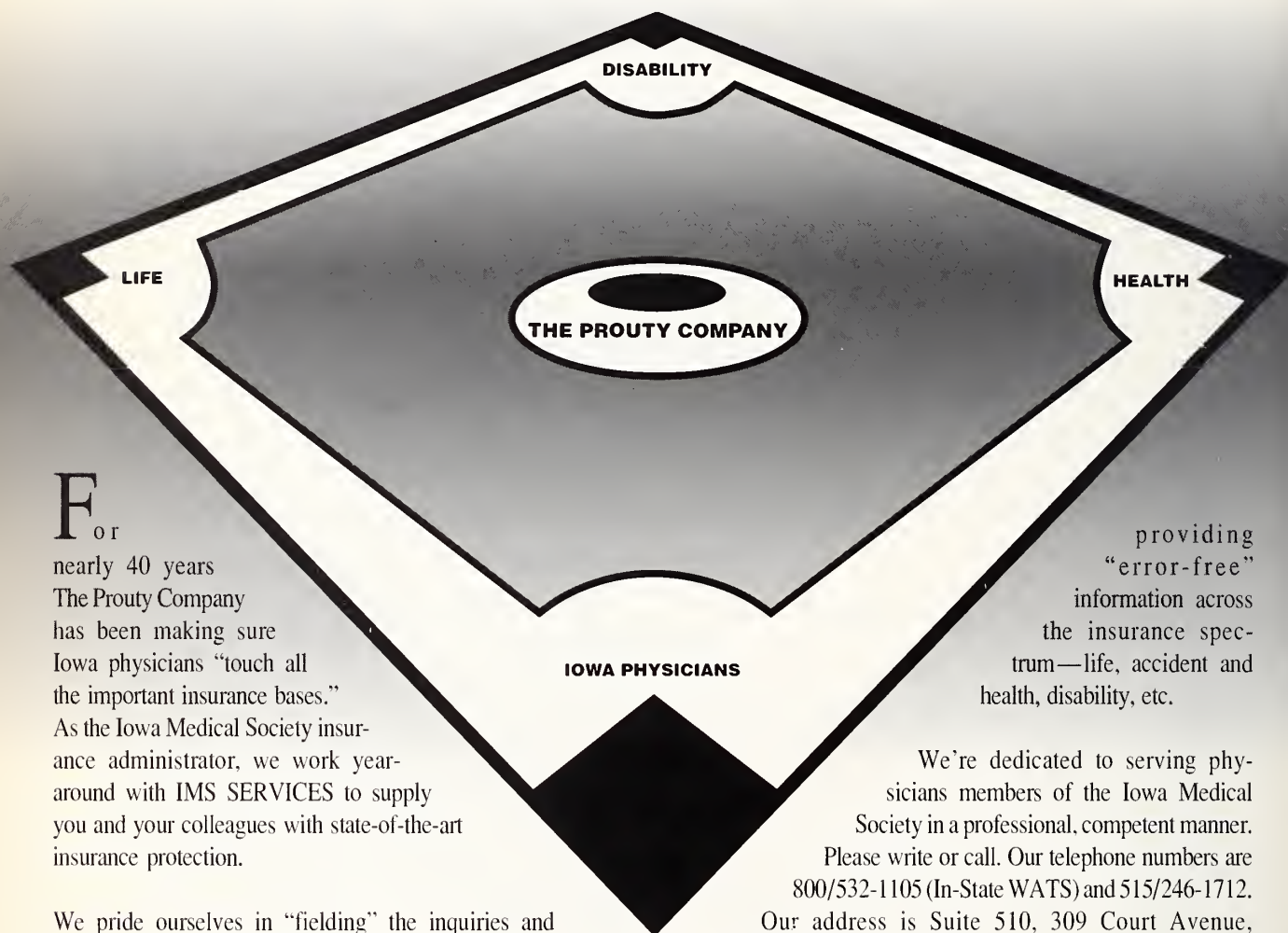
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## Documentation is Crucial

AS PART OF THE PRO CONTRACT with the Health Care Financing Administration (HCFA), the Iowa Foundation for Medical Care (IFMC) reviews care of Medicare beneficiaries in hospital outpatient departments and ambulatory surgery centers. Physician reviewers look for care that meets acceptable standards of medical care as well as complete documentation necessary to assess the care provided.

The following case illustrates a situation where appropriate care was provided but was unsupported by medical record documentation. Although further communication between the IFMC and the physician resolved the issue, a time-consuming and costly process would not have occurred had the physician provided complete documentation when treatment was given.

### Treatment

A 67-year-old female with persistent nasal obstruction and recurrent sinusitis came to ambulatory surgery. According to the operative note, the patient was taken to the operating room under routine preoperative sedation. General anesthesia was administered. The patient was prepped.

The right antrum was contracted. The physician performed a maxillary sinus irrigation and performed a similar procedure on the left side. A moderate nasal passage obstruction was noted bilaterally due to the grossly deviated septum. The septum was repaired. The physician overlapped sheeting and attached it to the septum with sutures. Dorsal tape was applied.

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This column is provided by the Iowa Foundation for Medical Care. This month's author is Ottumwa otolaryngologist William McMillan, M.D., a member of the IFMC's Specialty Review Panel for the Quality Assessment Committee.

### Reviewer Comments

According to the medical record, the patient received general anesthesia; however, no preoperative exam of the heart and lungs was documented. Also, the medical record contained no documentation of postoperative instructions or follow-up instructions for the patient. The IFMC physician reviewer had to

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*'Physician reviewers look for complete documentation necessary to assess the care provided.'*

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assume no preoperative exam of the heart and lungs occurred and no postoperative instructions were given to the patient. These are quality concerns and were assigned a severity level II: Potential quality problem with the potential for significant adverse patient effects.

The physician of concern received a letter from the IFMC indicating that, upon retrospective review, the case received a level II potential quality concern. The physician was given 30 days to respond to the potential quality concern.

The IFMC received two letters. The first contained documentation from the anesthesiologist substantiating the preoperative heart and lung exam was performed during a pre-surgery exam. The second contained a copy of the post operative instructions given to the patient after her surgery.

Correspondence was sent to the physician of concern from the IFMC stating that the new information resolved the level II potential quality concern.



## Radon in Iowa

**R**ADON IS A RADIOACTIVE GAS which occurs in nature. It cannot be seen, smelled or tasted, but long term exposure can increase the risk of lung cancer. The United States Environmental Protection Agency (EPA) estimates 20,000 Americans die annually from lung cancer caused by exposure to radon.

Since uranium is present in small quantities throughout the earth's surface, radon is constantly being released into the soil, underground water and the outdoor air. Radon is chemically inert and moves freely without combining with other materials. It quickly dissipates in open air, but if it seeps into buildings relatively high concentrations can accumulate. Since radon source strengths vary and radon entry routes are so unpredictable, testing each building is the only practical way to determine the amount of radon present.

### *Radon Daughters*

Like any radioactive element, radon decays spontaneously, producing products called "radon daughters" or "radon progeny." During the process of decay, alpha radiation is released. When radon is indoors (radon decays to radon daughters or progeny in about 4 minutes), these radioactive decay products tend to become attached to water vapor, dust and smoke particles. When inhaled, all of this can become lodged in unprotected lung tissue. As the radon daughters decay further, alpha radiation bombards the sensitive lung tissue.

Using state funds and technical assistance from the EPA, 1,550 homes in Iowa were screened for radon in 1988. Each county was represented in the screening process. Results of these tests indicate 70-75% of Iowa homes

exceed the EPA's 4 picocuries per liter guideline. This percentage is the highest of any of the 30 states that conducted the EPA/State survey.

Further breakdown revealed that 8-10% of Iowa homes may be above 20 picocuries per liter level. However, no Iowa homes exceeded 200 picocuries per liter, the level at which EPA recommends immediate action be taken to reduce the levels of radon or evacuate the home until the levels can be reduced. The EPA guideline of 4 picocuries per liter is based on the quantity of radioactive material per liter of air that will produce 2.2% disintegration per minute of radiation. This number was established by using data collected in studies of uranium mine workers in this country and Europe.

The EPA also provides Iowa with technical assistance to study radon in schools, offers proficiency testing for people interested in testing and mitigating radon and updates informational material for the public. EPA has regional radon training centers and conducts radon testing on federal buildings.

### *Testing Your Home*

Iowans can test and reduce radon levels on their own or they can contact Iowa certified radon specialists. Radon specialists are required by Iowa law to be certified.

There are simple steps people can take to immediately reduce their risk from high radon levels. The Department has outlined the steps which can be taken by home owners and will provide them upon request.

To get an information package, contact the Bureau of Radiological Health, Iowa Department of Public Health, Lucas State Office Building, Des Moines, Iowa 50319. 1-800/383-5992.

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This information on public health matters is furnished and sponsored by the Iowa Department of Public Health.

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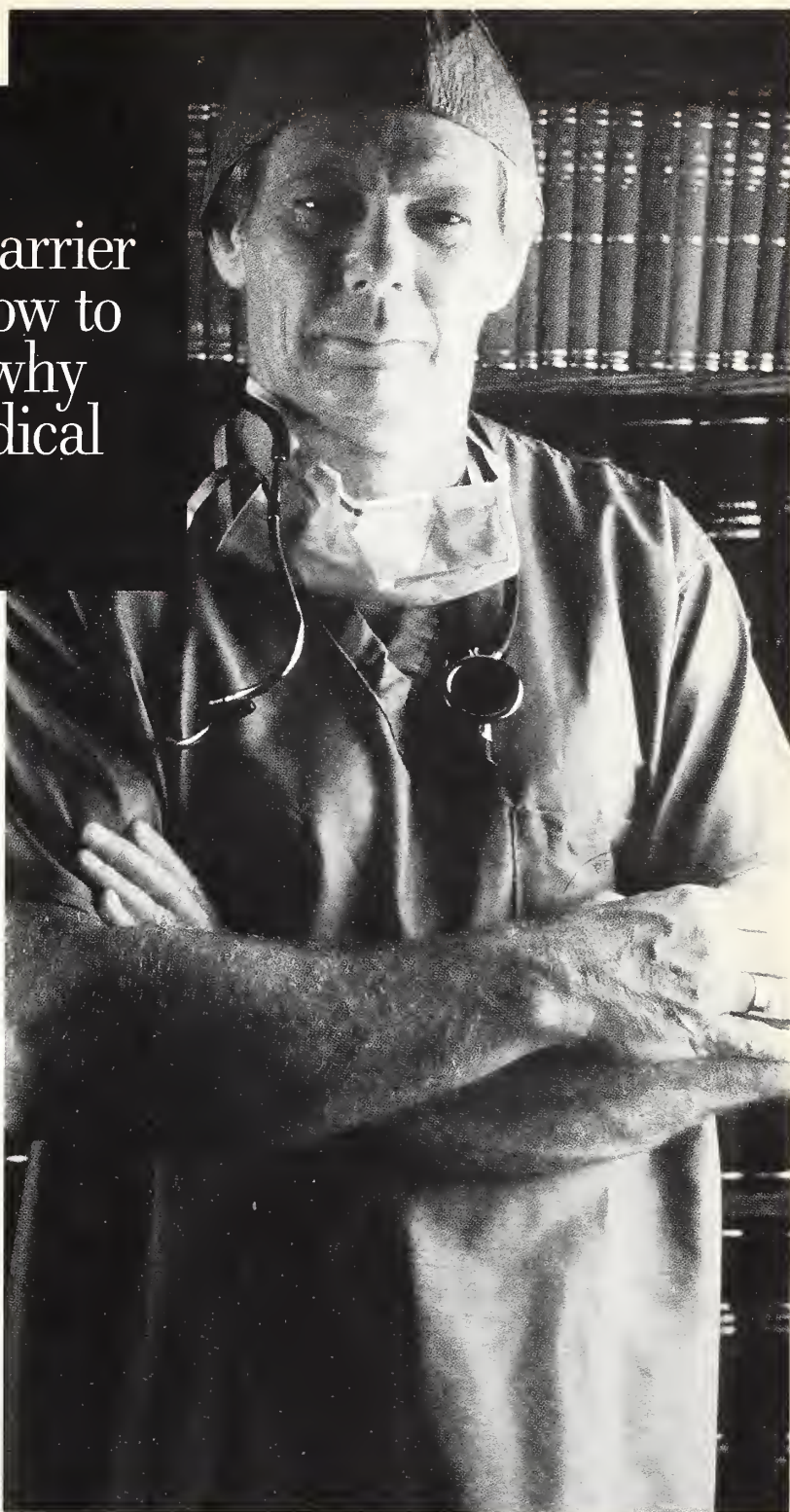
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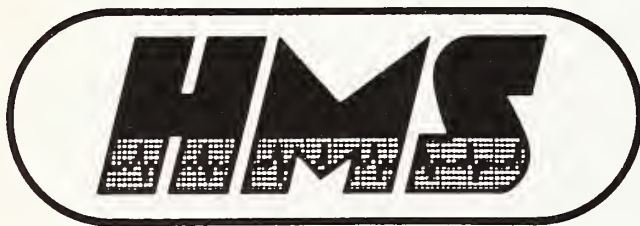
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## About Iowa Physicians

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**Dr. Kevin Massick** has joined Winterset Medical Center. Dr. Massick received the M.D. degree at the U. of I. College of Medicine and completed a family practice residency at Mercy/St. Luke's Hospital, Davenport. Dr. Massick replaced **Dr. Larry Foster** who joined a practice in St. Paul, Minnesota. **Dr. Abner Buresh** has retired after nearly 51 years of family practice in Lime Springs. Dr. Buresh is a life member of the Iowa Medical Society. **Dr. Robert Bischoff** has opened the Lime Springs Clinic. Dr. Bischoff received the M.D. degree at Universidad Del Noreste, Tampico, Mexico and completed a family practice residency at St. Joseph Mercy Hospital, Mason City. **Dr. Donald Ayres** has joined **Drs. James Case, Quentin Durward** and **Ralph Reeder** at Sioux City Neurology Neurosurgery P.C. Dr. Ayres received the M.D. degree from the University of Florida College of Medicine, Gainesville, Florida. Prior to locating in Sioux City, Dr. Ayres was assistant professor in clinical medicine at Dartmouth Medical School, Hanover, New Hampshire. **Dr. Johanna Abernathy**, Cedar Rapids, was recently named "Outstanding Woman of the Year" at the 14th annual celebration of Women's Equality Day. Dr. Abernathy was cited for her volunteer work and leadership in securing reproductive health care for women. **Dr. Frances Miles** has joined the practice of **Drs. William Daws, James Hendrix** and **Donald McCabe** in Burlington. Dr. Miles received the M.D. degree at University of Illinois at Chicago Health Sciences Center, Chicago, Illinois. **Dr. David Saggau** has joined Wolfe Clinic in Marshalltown. Dr. Saggau received the M.D. degree from the U. of I. College of Medicine and completed an ophthalmology residency at Mayo Clinic, Rochester, Minnesota. **Dr. Ronald Abbot** has joined the medical staff of Gundersen Clinic in West Union. He formerly was in general practice in Elkader. **Dr. Bruce Runyon** has joined the faculty at the U. of I. College of Medicine as an associate professor of medicine, department of internal medicine. **Dr. James Creech** has joined the Estherville Medical Center. Dr. Creech re-

cently completed a family practice residency at Siouxland Medical Education Foundation in Sioux City. **Dr. John Bennett** has joined the staff of Family Medicine of Mt. Pleasant, P.C. Dr. Bennett received the M.D. degree at George Washington University School of Medicine, Washington, D.C. and completed a residency at U. of I. Hospitals and Clinics. **Dr. Daniel Larose** of Miller Orthopaedic Affiliates P.C., Council Bluffs, recently received certification from the American Board of Orthopaedic Surgery. **Dr. Otto Kruse** has retired after 41 years of medical practice in Tipton. Dr. Kruse received the M.D. degree from the U. of I. College of Medicine and completed a residency at St. Luke's Hospital in Cedar Rapids. **Dr. William Mehrl** was recently named "Physician of the Year" by the Iowa Health Care Association at the Association's annual convention and awards banquet in Des Moines. Dr. Mehrl was selected for his service to the Shady Rest Care Center in Cascade where he serves as director. **Dr. Loran Coppoc** has left North Tama Medical Clinic in Traer to do hospital emergency room work at St. Anthony's Hospital in O'Neill, Nebraska. Three radiologists have joined Radiology Associates of Ottumwa P.C.: **Drs. Akhtar Ashraf, Dipak Shah** and **Karen Harkens**. Dr. Ashraf received the M.D. degree at Osmania Medical College, Hyderabad, India. Dr. Ashraf formerly was associated with the University of Missouri, Kansas City School of Medicine, Truman Medical Center. Dr. Shah received the M.D. degree from Baroda Medical College, Baroda, India. Prior to locating in Ottumwa, Dr. Shah was associated with the University of Missouri, Kansas City School of Medicine, Truman Medical Center. Dr. Harkens received the M.D. degree at University of California School of Medicine, Davis, California and had been in practice at Battle Mountain, Nevada and was associated with University of Nevada School of Medicine Sciences, Reno, Nevada. **Dr. Philip Bear**, Des Moines, and **Dr. Michael Giudici**, Davenport, have been elected to fellowship in the American College of Cardiology.



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# Classified Advertising

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*(Continued next page)*



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IMPAC .....	571
IPMIT .....	550
Lilly, Eli & Company .....	554B
Matrix Management Services .....	564
Medical Protective Company .....	581
Mercy Hospital Medical Center .....	554
Merck, Sharp and Dohme .....	591, 592
Prouty Company .....	578
Prudential-Bache Securities .....	574
Saint Joseph Hospital .....	552
Searle, G.D. and Company .....	559
U.S. Air Force .....	572
U.S. Army Research .....	554A

## IOWA MEDICINE Index to Volume LXXX Numbers 1-12 (1990)

About Iowa Physicians .....	43, 153, 216, 275, 315, 363, 411, 451, 498, 538, 583
Ah! Aha! Haha!, Carol A. Aschenbrenner, M.D. ....	179
Albanese, Mark, Ph.D. and Charles Helms, M.D., A continuing art and growing science .....	176
Alberts, M.E., M.D., Coral and bells: the mysterious history of teethers and rattles .....	242
Anfinson, Theodore, M.D. and Victor Swayze, II, M.D., Late life psychoses .....	69
Art of medicine, The, James F. Bishop, M.D. ....	21
Arthritis: a pediatric perspective, William Daws, M.D. ....	251
Aschenbrenner, Carol A., M.D., Ah! Aha! Haha! .....	179
Atkins, Dianne, M.D., et al, What's new in pediatrics? .....	236
Babies at risk: drug abuse and pregnancy, Don Van Dyke, M.D. and Susan Eberly, M.A. ....	391
Bale, James Jr., M.D., Neurologic complications of AIDS .....	292
Behrendt, Douglas, M.D., et al, How will we treat our number one killer? .....	27
Biomedical Ethics, Beginnings, 37; The Nancy Cruzan case, 136; The "roots" of biomedical ethics, 267; Ethics "experts" and the media, 357; Implications of Cruzan, 445; Physicians and assisted suicide, 534 .....	21
Bishop, James F., M.D., The art of medicine .....	525
Blodi, Christopher F., M.D., et al, Diabetic retinopathy .....	516
Blodi, Christopher F., M.D., What's new in ophthalmology .....	518
Blodi, F. C., M.D., Topical philately — a severe case .....	480
Bone graft craniofacial reconstruction, John Ganske, M.D. and Thomas Carlstrom, M.D. ....	567
Brindle, Charles, M.D., et al, Moss nasogastric tube and treatment of a perforated esophagus .....	25
Cancer: the next ten years, Robert Shreck, M.D. ....	185
Caplan, Richard M., M.D. and Charles E. Driscoll, M.D., Twenty years of MECO in Iowa .....	480
Carlstrom, Thomas, M.D. and John Ganske, M.D., Bone graft craniofacial reconstruction .....	567
Caropreso, Phillip, M.D., et al, Moss nasogastric tube and treatment of a perforated esophagus .....	301
Cerebral sinus thrombosis reconsidered, Erich Streib, M.D. ....	475
Cervical fractures in ankylosing spondylitis, John Samani and Charles Clark, M.D. ....	27
Chappell, David, M.D. et al, How will we treat our number one killer? .....	349
Cholesterol controversy, The, Helmut Schrott, M.D. and Pasquale Palumbo, M.D. ....	73
Cholinesterase risk for Iowa farmers, Scott Helmers, M.D., et al ..	475
Clark, Charles, M.D. and John Samani, Cervical fractures in ankylosing spondylitis .....	
Clinicopathologic Conference, The case of the man with bleeding gums, 78; The case of the confused man, 254; The case of the pained hypertensive, 394 .....	
CME Notebook, Richard M. Caplan, M.D., Education in the 1990s, 34; Ethics in CME, 84; CME ethics, continued, 135; Clinical tales, 264; The proper study of man?, 306; Medicus, physicus, doctore, 400; Caught doing it right, 442; Pre-meds: take acting?, 492; Thoughts of Sun Yat-Sen, 533; Decay or trajectory model?, 576 .....	176
Continuing art and growing science, A, Mark Albanese, Ph.D. and Charles Helms, M.D. ....	242
Coral and bells: the mysterious history of teethers and rattles, M.E. Alberts, M.D. ....	261
Crowley, Daniel, M.D., It's all true — almost .....	468
Current concepts in hip joint replacement, Patrick Sullivan, M.D., et al .....	251
Daws, William, M.D., Arthritis: a pediatric perspective .....	428
DeGravelles, William, Jr., M.D. and Lloyd Holt, C.I.R.S., Rehabilitation medicine: concepts and trends .....	437
Denhart, Charles, M.D., Rehabilitating head injuries .....	525
Diabetic retinopathy, James C. Folk, M.D., et al .....	
Driscoll, Charles E., M.D. and Richard M. Caplan, M.D., Twenty years of MECO in Iowa .....	185
Drug Therapy Review, Sustained-release dosage forms (part 1), 90; Sustained-release dosage forms (part 2) .....	141
Duggan, Anne, Medicine and the creative connection .....	189
Dykstra, Janet, R.N., et al, Cholinesterase risk for Iowa farmers ..	73
Eberly, Susan, M.A. and Don Van Dyke, M.D., Babies at risk: drug abuse and pregnancy .....	391
Eckstein, John W., M.D., Medical research wins recognition, support .....	174
Ely, John, M.D. and Linda Iler, M.D., Postpartum pneumoperitoneum .....	352
Flaum, Michael, M.D., Neuroleptics and schizophrenia .....	60
Folk, James C., M.D., et al, Diabetic retinopathy .....	525
Forecasts from Iowa health care experts, Ian Smith, M.D., et al ..	14
Forrest, Mike, et al, Substance abuse: a problem that won't go away .....	380

Fuortes, Laurence, M.D., <i>et al</i> , Traumatic head and spinal cord injury in Iowa	560	part?, 291; Don't let George do it, 331; What has the medical society done for me lately?, 379; Dedication, 427; Is it time to change?, 467; Good grades, 515; Tis the season to be active, 555	
Ganske, John, M.D. and Thomas Carlstrom, M.D., Bone graft craniofacial reconstruction	480	Primary meningococcal tenosynovitis, R. Bruce Trimble, M.D.	485
Giving something back	121	Pudendal anesthesia and the Iowa trumpet, Lloyd D. Holm, D.O.	129
Greetings from the AMA, John Tupper, M.D.	335	Pulido, Jose S., M.D., <i>et al</i> , Diabetic retinopathy	525
Grose, Charles, M.D., <i>et al</i> , What's new in pediatrics?	236	Questions and Answers, Peer education IPS goal, 63; Liability, restricted access of concern to ACOG, 123; Advocates for children, 247; Neurology advancing at 'breakneck' speed, 296; A democratic process, 347; The price of addiction, 386; Changing attitudes lead to accomplishments, 433; Orthopedist shortage continues, 471; Educational and socio-economic goals, 521; Adolescent smoking and uninsured are top priorities, 563	
Hauser, Katherine, M.D., <i>et al</i> , What's new in ob/gyn? Five Iowa physicians respond	116	Rare medical tomes are his passion	182
Have slides, will travel	337	Recent Books	35, 64, 299, 388, 487
Health care in the 1990s: rationing or rationalization? U.S. Congressman Tom Tauke	10	Rehabilitating head injuries, Charles Denhart, M.D.	437
Helms, Charles, M.D. and Mark Albanese, Ph.D., A continuing art and growing science	176	Rehabilitation medicine: concepts and trends, William deGravelles, Jr., M.D. and Lloyd Holt, C.I.R.S.	428
Helmert, Scott, M.D., <i>et al</i> , Cholinesterase risk for Iowa farmers	73	Reiter, Robert, M.D., <i>et al</i> , What's new in ob/gyn? Five Iowa physicians respond	116
Holm, Lloyd D., D.O., Pudendal anesthesia and the Iowa trumpet	129	Restraining costs, improving quality, Louis Sullivan, M.D.	8
Holt, Lloyd, C.I.R.S. and William deGravelles, Jr., M.D., Rehabilitation medicine: concepts and trends	428	Rhodes, John, Jr., M.D., <i>et al</i> , Forecasts from Iowa health care experts	14
House addresses key health issues	340	Rodawig, Donald, M.D., A 'wonderful and rewarding' year	332
How will we treat our number one killer?, David Chappell, M.D., <i>et al</i>	27	Romans, Paul, <i>et al</i> , Forecasts from Iowa health care experts	14
IFMC Case Notes, Severity ratings and quality concerns, 87; Following concomitant problems, 209; Outlier review, 309; Private review, 402; Long-term care residents and MI/MR/RC screenings, 495; Documentation is crucial, 579	528A	Safety of Iowa's blood supply, Ronald Strauss, M.D.	195
IMS headquarters insert	352	Samani, John and Charles Clark, M.D., Cervical fractures in ankylosing spondylitis	475
Iler, Linda, M.D. and John Ely, M.D., Postpartum pneumoperitoneum	125	Sanders, Kathleen, M.D., <i>et al</i> , What's new in pediatrics?	236
Improved screening for fetal chromosome abnormalities, Roger Williamson, M.D.	125	Schrott, Helmut, M.D. and Pasquale Palumbo, M.D., The cholesterol controversy	349
In the Public Interest, Finding the answers: taking the lead, 50; Cooperation replaces conflict, 106; A model program, 162; The art of medicine, 226; A tragedy unfolds, 282; Quietly helping people, 322; Good doctors, good citizens, 370; Physicians heal each other, 418; A healthy start, 458; Fifty years of cooperation, 506; Sight saving projects, 546; Blueprint for reform, 590	586	Scientific Session Program	136A
Index to Volume LXXX		Shah, Rizwan, M.D., <i>et al</i> , Substance abuse: a problem that won't go away	380
Iowa Department of Public Health, Public health legislation, 41; Annual immunization audit, 97; Improving prenatal care, 148; Working together, 213; Health needs of Iowa's children, 271; Public health legislation, 313; Office of rural health, 360; Governor's alliance on substance abuse, 406; Public health nursing services, 448; WIC's new rebate policy saves money, 496; Radon in Iowa, 580		Shirk, Gerald, M.D., <i>et al</i> , What's new in ob/gyn? Five Iowa physicians respond	116
Iowa's economy in the coming decade, Harvey Siegelman	12	Shreck, Robert, M.D., Cancer: the next ten years	25
It's all true — almost, Daniel Crowley, M.D.	261	Siegelman, Harvey, Iowa's economy in the coming decade	12
Jensen, John, <i>et al</i> , Forecasts from Iowa health care experts	14	Skorton, David, M.D., <i>et al</i> , How will we treat our number one killer?	27
Johnston, Richard, M.D., <i>et al</i> , Current concepts in hip joint replacement	468	Smith, Ian, M.D., <i>et al</i> , Forecasts from Iowa health care experts	14
Kelley, Scott, M.D., <i>et al</i> , Current concepts in hip joint replacement	468	Stiles, James, M.D., <i>et al</i> , Forecasts from Iowa health care experts	14
Kemp, Brian, M.A., <i>et al</i> , Cholinesterase risk for Iowa farmers	73	Stone, Kathy, <i>et al</i> , Substance abuse: a problem that won't go away	380
Kienzie, Michael, M.D., <i>et al</i> , How will we treat our number one killer?	27	Strauss, Ronald, M.D., Safety of Iowa's blood supply	195
Late life psychoses, Victor Swayze, II, M.D., and Theodore Anfinson, M.D.	69	Streib, Erich, M.D., Cerebral sinus thrombosis reconsidered	301
Letters to the Editor	66, 207, 260, 431, 487, 573	Substance abuse: a problem that won't go away, Mike Forrest, <i>et al</i>	380
Lombard, Kenneth, M.D., <i>et al</i> , What's new in pediatrics?	236	Sullivan, Louis, M.D., Restraining costs, improving quality	8
Manuscript Information for Authors	76, 128, 248, 303, 351, 393, 570	Sullivan, Patrick, M.D., <i>et al</i> , Current concepts in hip joint replacement	468
McGuinness, Gail, M.D., <i>et al</i> , What's new in pediatrics?	236	Swayze, Victor, II, M.D., and Theodore Anfinson, M.D., Late life psychoses	69
Medical research wins recognition, support, John W. Eckstein, M.D.	174	Syrop, Craig, M.D., <i>et al</i> , What's new in ob/gyn? Five Iowa physicians respond	116
Medical Students Forum, Exporting death: a new opium war, 203; What does the public want?, 204		Tauke, Tom, U.S. Congressman, Health care in the 1990s: rationing or rationalization?	10
Medicine and the creative connection, Anne Duggan	189	The Editor Comments, Marion E. Alberts, M.D., Challenge for the next decade, 33; Concern for the mentally ill, 83; Obstetrics, past to present, 133; Art and medicine, 201; Never underestimate a child, 259; Mixed messages, 305; Growth, 355; Friendship, 399; Tribute to rehabilitation medicine, 441; Autumn: nature's one last fling, 491; A building for the future, 531; Ocean to ocean, 575	
More About the Cover, An artistic physician	173	Topical philately — a severe case, F. C. Blodi, M.D.	518
Morriss, Jill, M.D., <i>et al</i> , What's new in pediatrics?	236	Traumatic head and spinal cord injury in Iowa, Laurence Fuortes, M.D., <i>et al</i>	560
Moss nasogastric tube and treatment of a perforated esophagus, Phillip Caropreso, M.D., <i>et al</i>	567	Trigg, Michael, M.D., <i>et al</i> , What's new in pediatrics?	236
Muldoon, Joann, M.S., <i>et al</i> , Traumatic head and spinal cord injury in Iowa	560	Trimble, R. Bruce, M.D., <i>et al</i> , Forecasts from Iowa health care experts	14
Neuroleptics and schizophrenia, Michael Flaum, M.D.	60	Trimble, R. Bruce, M.D., Primary meningococcal tenosynovitis	485
Neurologic complications of AIDS, James Bale, Jr., M.D.	292	Tsalikian, Eva, M.D., <i>et al</i> , What's new in pediatrics?	236
New building, old values, Robert Whinery, M.D.	339	Tupper, John, M.D., Greetings from the AMA	335
New Products and Programs	273, 409	Twenty years of MECO in Iowa, Richard M. Caplan, M.D. and Charles E. Driscoll, M.D.	185
Oakley, H. Fred, M.D., <i>et al</i> , Moss nasogastric tube and treatment of a perforated esophagus	567	Van Dyke, Don, M.D. and Susan Eberly, M.A., Babies at risk: drug abuse and pregnancy	391
OB care shortage in 28 counties, say survey respondents	556	Wacker, David, Ph.D., <i>et al</i> , What's new in pediatrics?	236
Palumbo, Pasquale, M.D. and Helmut Schrott, M.D., The cholesterol controversy	349	Weiner, Carl, M.D., <i>et al</i> , What's new in ob/gyn? Five Iowa physicians respond	116
Phillips, Kirk, <i>et al</i> , Traumatic head and spinal cord injury in Iowa	560	What's new in ob/gyn? Five Iowa physicians respond, Craig Syrop, M.D., <i>et al</i>	116
Physician's Guide to Medical Records	348A	What's new in ophthalmology, Christopher F. Blodi, M.D.	516
Postpartum pneumoperitoneum, John Ely, M.D. and Linda Iler, M.D.	352	What's new in pediatrics?, Kathleen Sanders, M.D., <i>et al</i>	236
Practice Management, Revolutionary changes, 38; The geriatric market, 88; Don't play Russian roulette, 138; Employment relationships: avoiding legal traps, 210; Your practice and risk, 268; Halfway planning, 310; Disaster recovery planning, 358; Automation and improved practice management, 405; The keys to patient satisfaction, 446; Watching your back: facts about IRS audits, 536		Whinery, Robert, M.D., New building, old values	339
President's Privilege, Advice for a new generation, 7; A special thank you, 59; Decade of the 90s: what do you want?, 115; A touch of art, 171; A punch line to ponder, 235; Did you take		Williamson, Roger, M.D., Improved screening for fetal chromosome abnormalities	125
		Winniford, Michael, M.D., <i>et al</i> , How will we treat our number one killer?	27
		'Wonderful and rewarding' year, A, Donald Rodawig, M.D.	332
		Zwick, Janet, <i>et al</i> , Substance abuse: a problem that won't go away	380



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## Blueprint for Reform

**A**FTER DECADES OF SCIENTIFIC and technological advance, America has become the premier nation in providing quality medical care and education. However, the outstanding level of care found in our system has not provided solutions to serious problems that leave 33 million Americans without health insurance.

Public opinion polls show Americans are discontented with this inequity and favor a system of employer-provided health insurance that would slow rising costs, improve access for the poor and elderly and remove the bureaucratic paperwork that stretches the resources of the system.

Physicians in Iowa and across the country who are represented by the American Medical Association share the view that improvements need to be made promptly, especially addressing the access and cost problems. After extensive review of the American health care system, the AMA has developed a 16-point proposal called "Health Access America." The proposal, which has been officially endorsed by the IMS, is a blueprint for extending access, controlling inappropriate health care cost increases and sustaining the Medicare program.

Summarized, the AMA's proposal would:

- effect major Medicaid reform to provide uniform adequate benefits.
- require employer provision of health insurance for full time employees through tax incentives.
- create risk pools in all states to provide coverage when group coverage is unavailable.
- enact Medicare reform to avoid bankruptcy of the program.
- expand long term care financing through expansion of private sector coverage extended by tax incentives.

- enact professional liability reform to reduce costs attributable to liability insurance and defensive medicine.

- develop professional practice parameters.

- alter tax treatment of employee health care benefits to reward people for making economical health care choices.

- develop proposals which encourage cost conscious decisions by patients.

- seek innovation in insurance writing, including creating larger risk groups.

- expand federal support for medical education and research.

- promote healthy lifestyles.

- amend federal tax codes so the same standards apply to self insured plans as to state-regulated policies.

- repeal state mandated benefit laws to help reduce cost of health insurance.

- seek reduction in administrative costs of health care delivery.

- encourage physicians to practice in accordance with highest ethical standards and provide voluntary care for those without insurance.

Strengthening America's health care system through the elements in this proposal will present an enormous challenge. The AMA intends to move forward vigorously on legislative and other fronts, as well as encouraging every interested party to join in the dialogue toward this goal. Our common objective will continue to be providing high quality care at a reasonable cost for every American.

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December 1990

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Iowa Medicine





# VASOTEC®

(ENALAPRIL MALEATE) MSD

VASOTEC is available in 2.5-mg, 5-mg, 10-mg, and 20-mg tablet strengths.

**Contraindications:** VASOTEC® (Enalapril Maleate, MSD) is contraindicated in patients who are hypersensitive to this product and in patients with a history of angioedema related to previous treatment with an ACE inhibitor.

**Warnings:** *Angioedema:* Angioedema of the face, extremities, lips, tongue, glottis, and/or larynx has been reported in patients treated with ACE inhibitors, including VASOTEC. In such cases, VASOTEC should be promptly discontinued and the patient carefully observed until the swelling disappears. In instances where swelling has been confined to the face and lips, the condition has generally resolved without treatment, although antihistamines have been useful in relieving symptoms. Angioedema associated with laryngeal edema may be fatal. **Where there is involvement of the tongue, glottis, or larynx likely to cause airway obstruction, appropriate therapy, e.g., subcutaneous epinephrine solution 1:1000 (0.3 mL to 0.5 mL), should be promptly administered.** (See ADVERSE REACTIONS.)

*Hypotension:* Excessive hypotension is rare in uncomplicated hypertensive patients treated with VASOTEC alone. Patients with heart failure given VASOTEC commonly have some reduction in blood pressure, especially with the first dose, but discontinuation of therapy for continuing symptomatic hypotension usually is not necessary when dosing instructions are followed; caution should be observed when initiating therapy. (See DOSAGE AND ADMINISTRATION.) Patients at risk for excessive hypotension, sometimes associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death, include those with the following conditions or characteristics: heart failure, hypotension, high-dose diuretic therapy, recent intensive diuresis or increase in diuretic dose, renal dialysis, or severe volume and/or salt depletion of any etiology. It may be advisable to eliminate the diuretic (except in patients with heart failure), reduce the diuretic dose, or increase salt intake cautiously before initiating therapy with VASOTEC in patients at risk for excessive hypotension who are able to tolerate such adjustments. (See PRECAUTIONS, Drug Interactions and ADVERSE REACTIONS.) In patients at risk for excessive hypotension, therapy should be started under very close medical supervision and such patients should be followed closely for the first two weeks of treatment and whenever the dose of enalapril and/or diuretic is increased. Similar considerations may apply to patients with ischemic heart disease or cardiovascular disease in whom an excessive fall in blood pressure could result in a myocardial infarction or cerebrovascular accident. If excessive hypotension occurs, the patient should be placed in the supine position and, if necessary, receive an intravenous infusion of normal saline. A transient hypotensive response is not a contraindication to further doses of VASOTEC, which usually can be given without difficulty once the blood pressure has stabilized. If symptomatic hypotension develops, a dose reduction or discontinuation of VASOTEC or concomitant diuretic may be necessary.

*Neutropenia/Agranulocytosis:* Another ACE inhibitor, captopril, has been shown to cause agranulocytosis and bone marrow depression, rarely in uncomplicated patients but more frequently in patients with renal impairment, especially if they also have a collagen vascular disease. Available data from clinical trials of enalapril are insufficient to show that enalapril does not cause agranulocytosis at similar rates. Foreign marketing experience has revealed several cases of neutropenia or agranulocytosis in which a causal relationship to enalapril cannot be excluded. Periodic monitoring of white blood cell counts in patients with collagen vascular disease and renal disease should be considered.

**Precautions:** *General:* *Impaired Renal Function:* As a consequence of inhibiting the renin-angiotensin-aldosterone system, changes in renal function may be anticipated in susceptible individuals. In patients with severe heart failure whose renal function may depend on the activity of the renin-angiotensin-aldosterone system, treatment with ACE inhibitors, including VASOTEC, may be associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death.

In clinical studies in hypertensive patients with unilateral or bilateral renal artery stenosis, increases in blood urea nitrogen and serum creatinine were observed in 20% of patients. These increases were almost always reversible upon discontinuation of enalapril and/or diuretic therapy. In such patients, renal function should be monitored during the first few weeks of therapy.

Some patients with hypertension or heart failure with no apparent preexisting renal vascular disease have developed increases in blood urea and serum creatinine, usually minor and transient, especially when VASOTEC has been given concomitantly with a diuretic. This is more likely to occur in patients with preexisting renal impairment. Dose reduction and/or discontinuation of the diuretic and/or VASOTEC may be required.

**Evaluation of patients with hypertension or heart failure should always include assessment of renal function.** (See DOSAGE AND ADMINISTRATION.)

*Hyperkalemia:* Elevated serum potassium ( $>5.7$  mEq/L) was observed in approximately 1% of hypertensive patients in clinical trials. In most cases these were isolated values which resolved despite continued therapy. Hyperkalemia was a cause of discontinuation of therapy in 0.28% of hypertensive patients. In clinical trials in heart failure, hyperkalemia was observed in 3.8% of patients, but was not a cause for discontinuation.

Risk factors for the development of hyperkalemia include renal insufficiency, diabetes mellitus, and the concomitant use of potassium-sparing diuretics, potassium supplements, and/or potassium-containing salt substitutes, which should be used cautiously, if at all, with VASOTEC. (See Drug Interactions.)

*Surgery/Anesthesia:* In patients undergoing major surgery or during anesthesia with agents that produce hypotension, enalapril may block angiotensin II formation secondary to compensatory renin release. If hypotension occurs and is considered to be due to this mechanism, it can be corrected by volume expansion.

#### Information for Patients:

*Angioedema:* Angioedema, including laryngeal edema, may occur especially following the first dose of enalapril. Patients should be so advised and told to report immediately any signs or symptoms suggesting angioedema (swelling of face, extremities, eyes, lips, tongue, difficulty in swallowing or breathing) and to take no more drug until they have consulted with the prescribing physician.

*Hypotension:* Patients should be cautioned to report lightheadedness, especially during the first few days of therapy. If actual syncope occurs, the patients should be told to discontinue the drug until they have consulted with the prescribing physician.

All patients should be cautioned that excessive perspiration and dehydration may lead to an excessive fall in blood pressure because of reduction in fluid volume. Other causes of volume depletion such as vomiting or diarrhea may also lead to a fall in blood pressure; patients should be advised to consult with the physician.

*Hyperkalemia:* Patients should be told not to use salt substitutes containing potassium without consulting their physician.

*Neutropenia:* Patients should be told to report promptly any indication of infection (e.g., sore throat, fever) which may be a sign of neutropenia.

**NOTE:** As with many other drugs, certain advice to patients being treated with enalapril is warranted. This information is intended to aid in the safe and effective use of this medication. It is not a disclosure of all possible adverse or intended effects.

#### Drug Interactions:

*Hypotension: Patients on Diuretic Therapy:* Patients on diuretics and especially those in whom diuretic therapy was recently instituted may occasionally experience an excessive reduction of blood pressure after initiation of therapy with enalapril. The possibility of hypotensive effects with enalapril can be minimized by either discontinuing the diuretic or increasing the salt intake prior to initiation of treatment with enalapril. If it is necessary to continue the diuretic, provide close medical supervision after the initial dose for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and DOSAGE AND ADMINISTRATION.)

*Agents Causing Renin Release:* The antihypertensive effect of VASOTEC is augmented by antihypertensive agents that cause renin release (e.g., diuretics).

*Other Cardiovascular Agents:* VASOTEC has been used concomitantly with beta-adrenergic-blocking agents, methyldopa, nifedipine, calcium-channel blocking agents, hydralazine, prazosin, and digoxin without evidence of clinically significant adverse interactions.

*Agents Increasing Serum Potassium:* VASOTEC attenuates potassium loss caused by thiazide-type diuretics. Potassium-sparing diuretics (e.g., spironolactone, triamterene, or amiloride), potassium supplements, or potassium-containing salt substitutes may lead to significant increases in serum potassium. Therefore, if concomitant use of these agents is indicated because of demonstrated hypokalemia, they should be used with caution and with frequent monitoring of serum potassium. Potassium-sparing agents should generally not be used in patients with heart failure receiving VASOTEC.

*Lithium:* Lithium toxicity has been reported in patients receiving lithium concomitantly with drugs which cause elimination of sodium, including ACE inhibitors. A few cases of lithium toxicity have been reported in patients receiving concomitant VASOTEC and lithium and were reversible upon discontinuation of both drugs. It is recommended that serum lithium levels be monitored frequently if enalapril is administered concomitantly with lithium.

*Pregnancy—Category C:* There was no fetotoxicity or teratogenicity in rats treated with up to 200 mg/kg/day of enalapril (333 times the maximum human dose). Fetotoxicity, expressed as a decrease in average fetal weight, occurred in rats given 1200 mg/kg/day of enalapril but did not occur when these animals were supplemented with saline. Enalapril was not teratogenic in rabbits. However, maternal and fetal toxicity occurred in some rabbits at doses of 1 mg/kg/day or more. Saline supplementation prevented the maternal and fetal toxicity seen at doses of 3 and 10 mg/kg/day, but not at 30 mg/kg/day (50 times the maximum human dose).

Radioactivity was found to cross the placenta following administration of labeled enalapril to pregnant hamsters. There are no adequate and well-controlled studies of enalapril in pregnant women. However, data are available that show enalapril crosses the human placenta. Because the risk of fetal toxicity with the use of ACE inhibitors has not

been clearly defined, VASOTEC® (Enalapril Maleate, MSD) should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Postmarketing experience with all ACE inhibitors thus far suggests the following with regard to pregnancy outcome. Inadvertent exposure limited to the first trimester of pregnancy has not been reported to affect fetal outcome adversely. Fetal exposure during the second and third trimesters of pregnancy has been associated with fetal and neonatal morbidity and mortality.

When ACE inhibitors are used during the later stages of pregnancy, there have been reports of hypotension and decreased renal perfusion in the newborn. Oligohydramnios in the mother has also been reported, presumably representing decreased renal function in the fetus. Infants exposed *in utero* to ACE inhibitors should be closely observed for hypotension, oliguria, and hyperkalemia. If oliguria occurs, attention should be directed toward support of blood pressure and renal perfusion with the administration of fluids and pressors as appropriate. Problems associated with prematurity such as patent ductus arteriosus have occurred in association with maternal use of ACE inhibitors, but it is not clear whether they are related to ACE inhibition, maternal hypertension, or the underlying prematurity.

*Nursing Mothers:* Milk in lactating rats contains radioactivity following administration of  $^{14}$ C enalapril maleate. It is not known whether this drug is secreted in human milk. Because many drugs are secreted in human milk, caution should be exercised when VASOTEC is given to a nursing mother.

*Pediatric Use:* Safety and effectiveness in children have not been established.

**Adverse Reactions:** VASOTEC has been evaluated for safety in more than 10,000 patients, including over 1000 patients treated for one year or more. VASOTEC has been found to be generally well tolerated in controlled clinical trials involving 2987 patients.

**HYPERTENSION:** The most frequent clinical adverse experiences in controlled trials were: headache (5.2%), dizziness (4.3%), and fatigue (3%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in controlled clinical trials were: diarrhea (1.4%), nausea (1.4%), rash (1.4%), cough (1.3%), orthostatic effects (1.2%), and asthenia (1.1%).

**HEART FAILURE:** The most frequent clinical adverse experiences in both controlled and uncontrolled trials were: dizziness (7.9%), hypotension (6.7%), orthostatic effects (2.2%), syncope (2.2%), cough (2.2%), chest pain (2.1%), and diarrhea (2.1%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in both controlled and uncontrolled clinical trials were: fatigue (1.8%), headache (1.8%), abdominal pain (1.6%), asthenia (1.6%), orthostatic hypotension (1.6%), vertigo (1.6%), angina pectoris (1.5%), nausea (1.3%), vomiting (1.3%), bronchitis (1.3%), dyspnea (1.3%), urinary tract infection (1.3%), rash (1.3%), and myocardial infarction (1.2%).

Other serious clinical adverse experiences occurring since the drug was marketed or adverse experiences occurring in 0.5% to 1% of patients with hypertension or heart failure in clinical trials in order of decreasing severity within each category:

**Cardiovascular:** Cardiac arrest; myocardial infarction or cerebrovascular accident, possibly secondary to excessive hypotension in high-risk patients (see WARNINGS, Hypotension); pulmonary embolism and infarction; pulmonary edema; rhythm disturbances; atrial fibrillation; palpitation.

**Digestive:** Ileus, pancreatitis, hepatitis (hepatocellular or cholestatic jaundice), melena, anorexia, dyspepsia, constipation, glossitis, stomatitis, dry mouth.

**Musculoskeletal:** Muscle cramps.

**Nervous/Psychiatric:** Depression, confusion, alaxia, somnolence, insomnia, nervousness, paresthesia.

**Urogenital:** Renal failure, oliguria, renal dysfunction (see PRECAUTIONS and DOSAGE AND ADMINISTRATION).

**Respiratory:** Bronchospasm, rhinorrhea, sore throat and hoarseness, asthma, upper respiratory infection.

**Skin:** Exfoliative dermatitis, toxic epidermal necrolysis, Stevens-Johnson syndrome, herpes zoster, erythema multiforme, urticaria, pruritus, alopecia, flushing, hyperhidrosis.

**Special Senses:** Blurred vision, taste alteration, anosmia, tinnitus, conjunctivitis, dry eyes, tearing.

A symptom complex has been reported which may include a positive ANA, an elevated erythrocyte sedimentation rate, arthralgia/arthritis, myalgia, fever, serositis, vasculitis, leukocytosis, eosinophilia, photosensitivity, rash, and other dermatologic manifestations.

*Angioedema:* Angioedema has been reported in patients receiving VASOTEC (0.2%). Angioedema associated with laryngeal edema may be fatal. If angioedema of the face, extremities, lips, tongue, glottis, and/or larynx occurs, treatment with VASOTEC should be discontinued and appropriate therapy instituted immediately. (See WARNINGS.)

*Hypotension:* In the hypertensive patients, hypotension occurred in 0.9% and syncope occurred in 0.5% of patients following the initial dose or during extended therapy. Hypotension or syncope was a cause for discontinuation of therapy in 0.1% of hypertensive patients. In heart failure patients, hypotension occurred in 6.7% and syncope occurred in 2.2% of patients. Hypotension or syncope was a cause for discontinuation of therapy in 1.9% of patients with heart failure. (See WARNINGS.)

#### Clinical Laboratory Test Findings:

*Serum Electrolytes:* Hyperkalemia (see PRECAUTIONS), hyponatremia.

*Creatinine, Blood Urea Nitrogen:* In controlled clinical trials, minor increases in blood urea nitrogen and serum creatinine, reversible upon discontinuation of therapy, were observed in about 0.2% of patients with essential hypertension treated with VASOTEC alone. Increases are more likely to occur in patients receiving concomitant diuretics or in patients with renal artery stenosis. (See PRECAUTIONS.) In patients with heart failure who were also receiving diuretics with or without digitalis, increases in blood urea nitrogen or serum creatinine, usually reversible upon discontinuation of VASOTEC and/or other concomitant diuretic therapy, were observed in about 1% of patients. Increases in blood urea nitrogen or creatinine were a cause for discontinuation in 1.2% of patients.

*Hemoglobin and Hematocrit:* Small decreases in hemoglobin and hematocrit (mean decreases of approximately 0.3 g% and 1.0 vol%, respectively) occur frequently in either hypertension or heart failure patients treated with VASOTEC but are rarely of clinical importance unless another cause of anemia coexists. In clinical trials, less than 0.1% of patients discontinued therapy due to anemia.

*Other (Causal Relationship Unknown):* In marketing experience, rare cases of neutropenia, thrombocytopenia, and bone marrow depression have been reported. A few cases of hemolysis have been reported in patients with G6PD deficiency.

*Liver Function Tests:* Elevations of liver enzymes and/or serum bilirubin have occurred.

**Dosage and Administration:** *Hypertension:* In patients who are currently being treated with a diuretic, symptomatic hypotension for occasionally may occur following the initial dose of VASOTEC. The diuretic should, if possible, be discontinued for two to three days before beginning therapy with VASOTEC to reduce the likelihood of hypotension. (See WARNINGS.) If the patient's blood pressure is not controlled with VASOTEC alone, diuretic therapy may be resumed. If the diuretic cannot be discontinued, an initial dose of 2.5 mg should be used under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, Drug Interactions.)

The recommended initial dose in patients not on diuretics is 5 mg once a day. Dosage should be adjusted according to blood pressure response. The usual dosage range is 10 to 40 mg per day administered in a single dose or in two divided doses. In some patients treated once daily, the antihypertensive effect may diminish toward the end of the dosing interval. In such patients, an increase in dosage or twice-daily administration should be considered. If blood pressure is not controlled with VASOTEC alone, a diuretic may be added.

Concomitant administration of VASOTEC with potassium supplements, potassium salt substitutes, or potassium-sparing diuretics may lead to increases of serum potassium (see PRECAUTIONS).

*Dosage Adjustment in Hypertensive Patients with Renal Impairment:* The usual dose of enalapril is recommended for patients with a creatinine clearance  $> 30$  mL/min (serum creatinine of up to approximately 3 mg/dL). For patients with creatinine clearance  $\leq 30$  mL/min (serum creatinine  $\geq 3$  mg/dL), the first dose is 2.5 mg once daily. The dosage may be titrated upward until blood pressure is controlled or to a maximum of 40 mg daily.

*Heart Failure:* VASOTEC is indicated as adjunctive therapy with diuretics and digitalis. The recommended starting dose is 2.5 mg once or twice daily. After the initial dose of VASOTEC, the patient should be observed under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, Drug Interactions.) The dose of the diuretic should be reduced, which may diminish the likelihood of hypotension. The appearance of hypotension after the initial dose of VASOTEC does not preclude subsequent careful dose titration with the drug, following effective management of the hypotension. The usual therapeutic dosing range for the treatment of heart failure is 5 to 20 mg daily given in two divided doses. The maximum daily dose is 40 mg. Once-daily dosing has been effective in a controlled study, but nearly all patients in this study were given 40 mg, the maximum recommended daily dose, and there has been much more experience with twice-daily dosing. In addition, in a placebo-controlled study which demonstrated reduced mortality in patients with severe heart failure (NYHA Class IV), patients were treated with 2.5 to 40 mg per day of VASOTEC, almost always administered in two divided doses. (See CLINICAL PHARMACOLOGY, Pharmacodynamics and Clinical Effects.) Dosage may be adjusted depending upon clinical or hemodynamic response. (See WARNINGS.)

*Dosage Adjustment in Patients with Heart Failure and Renal Impairment or Hyponatremia:* In patients with heart failure who have hyponatremia (serum sodium  $< 130$  mEq/L) or with serum creatinine  $> 1.6$  mg/dL, therapy should be initiated at 2.5 mg daily under close medical supervision. (See DOSAGE AND ADMINISTRATION, Heart Failure, WARNINGS, and PRECAUTIONS, Drug Interactions.) The dose may be increased to 2.5 mg b.i.d., then 5 mg b.i.d. and higher as needed, usually at intervals of four days or more, if at the time of dosage adjustment there is not excessive hypotension or significant deterioration of renal function. The maximum daily dose is 40 mg.

For more detailed information, consult your MSD Representative or see Prescribing Information, Merck Sharp & Dohme, Division of Merck & Co., Inc., West Point, PA 19380.

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J9V561R2(820)





## THERAPY THAT MAY BE AS SILENT AS HYPERTENSION ITSELF

VASOTEC is generally well tolerated and not characterized by certain undesirable effects associated with selected agents in other antihypertensive classes.

VASOTEC is contraindicated in patients who are hypersensitive to this product and in patients with a history of angioedema related to previous treatment with an ACE inhibitor. A diminished antihypertensive effect toward the end of the dosing interval can occur in some patients.

For a Brief Summary of Prescribing Information, please see the last page of this advertisement.

FOR MANY  
HYPERTENSIVE PATIENTS  
**ONCE-A-DAY**

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(ENALAPRIL MALEATE | MSD)



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# PHYSICIAN'S GUIDE TO MEDICAL RECORDS

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AN  
IOWA MEDICAL SOCIETY  
PUBLICATION

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D I S T R I B U T E D   T H R O U G H   I M S   S E R V I C E S

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# *Physician's Guide to Medical Records*

*An Iowa Medical Society Publication  
Distributed through IMS Services*

*This guide contains information for Iowa physicians covering certain legal and ethical implications of medical record management. The emphasis in this reference document is placed on 2 specific and important aspects of record administration: the release of medical records and the retention of medical records. There are additional factors of consequence to the medical practice in handling patient data, e.g., clarity, conciseness, timeliness of preparation, methods of recording, etc. The adoption and periodic review of a record handling policy is recommended for all types of medical practice.*

*The statutes cited in this guide are those in effect as of January 1, 1990. Statutes or regulations can be misinterpreted when viewed in isolation and the full text of the relevant statutes or regulations must be considered. Statutes and regulations are subject to amendment and judicial interpretation. Federal laws may also need to be considered in a specific situation. Physicians are advised to consult an attorney knowledgeable in health care law for answers to questions of special importance.*

**COPYRIGHT 1990 BY THE IOWA MEDICAL SOCIETY  
1001 GRAND AVENUE, WEST DES MOINES, IOWA 50265  
515/223-1401 or IOWA IN-WATS 800/747-3070**

Two topics of major importance to the Iowa medical practice in its record management are summarized in this guide:

**Part 1—RELEASING MEDICAL RECORDS**

**Part 2—RETAINING MEDICAL RECORDS**

**Patient information must be handled skillfully and professionally in the contemporary office/clinic. The medical record is a confidential document involving the physician-patient relationship and should be treated accordingly.**

*Part 1:*

## **RELEASING MEDICAL RECORDS**

**W**HAT SHOULD IOWA PHYSICIANS consider when a patient record is requested? Physicians should be aware of legal and ethical considerations when supplying information from their records.

The Iowa Medical Society Judicial Council has requested that this information be prepared for reference use by member physicians and others.

The interest of the patient is paramount in the practice of medicine. Everything that can reasonably and lawfully be done to serve that interest must be done by all physicians who have served or are serving the patient.

### ***Release to Patient***

There are 2 areas of concern regarding release of medical records. One involves access by the patient to medical records. The second is the circumstances under which records may be released to a third party.

Generally, medical records are recognized as the property of the physician or the health

care facility. However, many states recognize the patient has a legitimate interest in the information contained in the records. Therefore, it is suggested that physicians ordinarily release records to the patient upon presentation of appropriate written authorization.

If a physician has sound reasons for believing access to the records would be injurious to the patient's health or well-being, direct patient access may be denied. It may be possible to provide the patient with a summary of the record which will meet his or her needs without causing harm; or the physician may provide copies of the medical record (with proper authorization from the patient) to a designated representative of the patient, such as an attorney.

### ***Records of Minors***

A request for access to or release of a minor patient's records should be made by a parent or legal guardian. There are some circumstances, however, involving such matters as preg-



nancy, AIDS, venereal disease or substance abuse, where a physician may be exposed to potential liability for releasing a minor's medical records to a parent or guardian. The physician should consult an attorney.

### ***Nature of Written Authorization***

The written authorization to be obtained before releasing records to a patient should include the date the authorization is signed by the patient. It should indicate the patient has requested release of the records. It should show the signature of the patient, the portion or portions of the record authorized to be released, who the records are to be provided to and the name of the person who actually released the records to the patient with the date of the release. Only in exceptional circumstances should original records be given to the patient. In a typical case, photocopies should be provided.

Physicians may establish reasonable charges for the costs of copying, but a patient should not be denied copies because of inability to pay. Nor should access to the records be denied because of an unpaid bill for medical services. The records should be given to the patient within a reasonable time.

### ***Release to Other Parties***

Release of medical records to someone other than the patient is primarily a question of maintaining the confidentiality of the physician-patient relationship. The AMA Judicial Council says a patient's medical record "is a confidential document involving the physician-patient relationship and should not be communicated to a third party without the patient's prior written consent, unless required by law or to protect the welfare of the individual or the community." *Current Opinions of the Judicial Council of the American Medical Association*, Section 7.02(1989).

### ***Aspects of Confidentiality***

Iowa law recognizes the ethical duty of confidentiality in a statute which bars physicians from giving testimony which would disclose confidential communications unless the patient waives his right to nondisclosure or unless certain other specified requirements are

met. *Iowa Code, Section 622.10(1989)*. This statute, however, applies only to testimony. There is no law governing disclosure of non-public medical records, although special provisions exist with regard to medical records involving AIDS/HIV infection, mental illness and substance abuse as described below. The duty to maintain the confidentiality of patient records thus is largely ethical, but courts in a number of states have imposed civil liability for its breach.

### ***Prompt Consideration of a Request***

When a patient requests that records be transferred to another physician, the request must be honored promptly. Again, the request should be made by the patient in writing unless a medical emergency exists. If the originals of the records are transferred, the physician should retain a complete copy of the records with a notation of the date the records were transferred and the name of the physician who received the records.

It is impossible to anticipate all circumstances under which a patient might request records be transferred to a third party. Typical situations include requests by insurance companies, employers, or attorneys. In all circumstances, absent a court order or medical emergency, the physician should obtain, prior to release of the records, a waiver signed by the patient designating the name of the party to receive the records. The records should be sent only to the party named in the release.

In the third party situation, as in the case of direct patient access, a patient's request for release of records should never be denied because of an unpaid bill.

### ***Acquired Immunodeficiency Syndrome (AIDS) Information***

A physician who has information as to the identity of any person upon whom an HIV-related test is performed, or the results of the test, may not disclose the information in a manner which permits identification of the subject of the test, with the following exceptions:

1. The information may be provided to the subject of the test or the subject's legal guardian when the physician is carrying out his

or her responsibility to notify the legal guardian of a minor when the test result is positive.

2. The information may be provided to any person who secures a written release of test results executed by the subject of the test or the subject's legal guardian.
3. The information may be provided to an authorized agent or employee of a health facility or health care provider if:
  - a. the health facility or health care provider ordered or participated in the testing, or
  - b. is otherwise authorized to obtain the test results, or
  - c. the agent or employee provides patient care or handles or processes specimens of body fluids or tissues and the agent or employee has a medical need to know such information.
4. The information may be provided to licensed medical personnel providing care to the subject of the test, when knowledge of the test results is necessary to provide care or treatment.
5. The information may be provided to the Department of Public Health in accordance with statutory reporting requirements for an HIV-related condition.
6. The information may be provided to a health facility or health care provider which procures, processes, distributes, or uses a human body part from a deceased person with respect to medical information regarding that person, or semen provided prior to July 1, 1988, for purposes of artificial insemination.
7. The information may be provided pursuant to a court order which was issued in compliance with statutory provisions. *Iowa Code, Section 141.23(1)(g) (1989).*
8. The information may be provided to an employer, if the test is authorized to be required under provisions of Iowa's unfair employment practice law. *Iowa Code, Section 601A.6(1)(d) (1989).*

A person to whom the results of an HIV-related test have been disclosed may not disclose the test results to another person unless pursuant to one of the exceptions listed above.

If disclosure is to be made pursuant to one of the exceptions, the disclosure must be accompanied by a statement in writing which includes the following or substantially similar language:

This information has been disclosed to you from records whose confidentiality is protected by state law. State law prohibits you from making any further disclosure of the information without the specific written consent of the person to whom it pertains, or as otherwise permitted by law. *A general authorization for the release of medical or other information is not sufficient for this purpose.* (Emphasis added)

Oral disclosure must be accompanied or followed by a written notice within 10 days. *Iowa Code, Section 141.23(1989).*

Physicians must be particularly careful in releasing medical records containing HIV-related test results. The written authorization for the release of AIDS or HIV-related information by the subject of the test (or the subject's legal guardian) must be something more than a general release form. It must specifically include approval for the release of HIV-related test information and must be accompanied by the written statement regarding redisclosure set out above.

To assure proper authorization for the release of medical records containing HIV-related test results, physicians are advised to have *all* patients sign separate authorization forms for the release of AIDS or HIV-related information when records are to be released, or utilize release forms which include clearly identified sections authorizing the release of AIDS or HIV-related information. All patients whose records are to be released should sign these forms unless the physician has developed a safe and confidential system for identifying medical records which contain HIV-related test results. Such a system would alert the physician and medical records staff when authorization for release of AIDS or HIV-related information must be obtained.

The IMS Committee on AIDS has studied medical record keeping systems appropriate for identifying records which contain HIV test results. The Committee believes information related to HIV testing should remain a part of the patient's full medical record. It has identified 2 record keeping options.



*Option 1:* Patient records which include HIV test results and related information can be specially tagged. To assure confidentiality, tags may be developed which are not visible until the file is opened.

*Option 2:* HIV test results and related information can be placed in a separate envelope or folder within the patient's full medical record.

Releasing information pursuant to a general release form presented by a third party and signed by a patient (where the medical record contains HIV-related test results) is a difficult dilemma. By notifying the third party that the records provided are not complete due to insufficient authorization under state law, the patient's right to confidentiality may be indirectly violated. Instead, the physician should contact the patient and request him or her to sign a special authorization for the release of the AIDS or HIV-related information in order to fully comply with the request of the third party. If the patient does not sign the release, the physician is prohibited by law from releasing that portion of the record.

The physician's legal counsel should be advised of the record keeping process and should review the authorization forms used for release of HIV-related test information.

## ***Mental Health Information***

Iowa law protects the confidentiality of information relating to mental health patients, and the law on disclosure of mental health information is complicated. Iowa physicians who must provide mental health information to third parties should consult legal counsel to assure a proper process for administration of such disclosures.

Disclosure of covered records is prohibited unless one of 3 broad exceptions exists. These exceptions include voluntary disclosures; administrative disclosures; and judicial and statutory disclosures. Special procedures are also established for disclosure for claims administration and peer review, and for the release of some information on individuals who are hospitalized for mental illness in certain circumstances.

Upon disclosure of mental health information to a third-party recipient pursuant to any of these exceptions, the person disclosing the

mental health information must enter and maintain a notation on the individual's mental health record stating the date of the disclosure and the name of the recipient of the mental health information. The person disclosing the mental health information must give the recipient of the information a cautionary statement which states that disclosure may only be made pursuant to the written authorization of an individual or the individual's legal representative, that the unauthorized disclosure of mental health information is unlawful and that civil damages and criminal penalties may be applicable to the unauthorized disclosure of mental health information.

The recipient of the mental health information may not disclose the information except as specifically authorized. However, the information may be transferred to another facility, physician, or mental health professional in cases of medical emergency, or if requested in writing by the patient or patient's legal representative, for the purpose of receiving medical or mental health professional services. The person transferring the information must also note the transfer in the record and provide the cautionary statement to the recipient. *Iowa Code, Section 228.2(1989).*

## ***Exceptions***

*Voluntary Disclosures*—Release of mental health information can be made pursuant to a voluntary written authorization which meets all the following requirements.

1. Is voluntarily signed by a patient who is 18 years of age or older, or the patient's legal representative.
2. Specifies the nature of the information to be disclosed, the persons or types of persons authorized to disclose the information, and the purposes for which the information may be used both at the time of the disclosure and in the future.
3. Advises the individual of his/her right to inspect the disclosed information at any time.
4. States that the authorization may be revoked and the conditions of revocation.
5. Specifies the length of time for which the authorization is valid and whether the authorization is renewable.
6. Contains the date the authorization was signed.

A copy of the authorization must be given to the patient or the patient's legal representative and be placed in the patient's medical record. *Iowa Code, Section 228.3(1989).*

**Judicial and Statutory Disclosures**—Iowa law authorizes certain disclosures *to the extent necessary* to comply with special requirements relating to involuntary hospitalization of a mentally ill person, reimbursement of services provided by state mental health institutes, preparation and approval of community mental health center budgets, submission of evidence in civil or criminal judicial proceedings relating to child abuse, juvenile court records, and compulsory disclosure or reporting requirements of other state or federal laws relating to the protection of human health and safety.

Mental health information *may* also be disclosed pursuant to court rules by a physician who performs a court ordered examination, if information is necessary to initiate or complete involuntary mental health hospitalization commitment proceedings, or when the mental health information is offered by the patient or the patient's legal representative as evidence of the patient's mental or emotional condition to prove an element of a claim or defense in a civil or administrative proceeding. *Iowa Code, Section 228.6(1989).*

**Administrative Disclosures**—Certain administrative disclosures are allowed without written authorization.

In house disclosures to employees or agents of the same mental health facility are permitted only "to the extent necessary to facilitate the provision of professional services." Disclosures to employees or agents of the same facility are otherwise prohibited.

Disclosure of administrative information to a person or agency providing collection services is permitted after the patient or legal representative has been billed and has failed to arrange for payment of the fee within a reasonable time. Only the patient's name, ID number, age, sex, address, dates and character of services and fees may be disclosed.

Disclosures are also permitted for scientific research, management audits, or program evaluations to persons who have demonstrated and provided written assurance they will comply with the law and not redisclose any patient identifying information they receive.

Physicians making such disclosures should have a clear written agreement by the recipient to protect the confidentiality of the records. *Iowa Code, Section 228.5(1989).*

### ***Disclosures for Claims Administration and Peer Review***

Mental health information may be disclosed to a third party payer or to a peer review organization with prior written authorization of the patient or the patient's legal representative. The written authorization should include all information required for voluntary disclosure.

### ***Persons Hospitalized for Mental Illness***

Records maintained by a hospital or other facility relating to the examination, custody, care and treatment of a *hospitalized* mentally ill person are confidential, except the chief medical officer must release information if (1) the person about whom the information is sought signs a written waiver for release of the information to a licensed attorney, physician or advocate; (2) the information is sought by court order; or (3) the patient (or his guardian, if he is a minor or legally incompetent) signs an informed consent to release the information. In the latter case, the consent must designate specifically the person or agency to whom the information is to be sent.

The chief medical officer may release "appropriate information" during a consultation with the next of kin of a mentally ill patient if requested by the next of kin, and if the chief medical officer deems it to be in the best interest of the patient and the next of kin to do so. *Iowa Code, Chapters 228 and 229(1989).*

### ***Substance Abuse Information***

There are special laws on release of medical records pertaining to persons who have received treatment for substance abuse at a hospital or other facility. Although state and federal laws and regulations relating to release of substance abuse information are directed toward substance abuse treatment facilities, physicians are advised to include within their written authorizations language specifically permitting the release of substance abuse information.

Federal regulations require treatment facilities to include specific information in the



## About Medical Records

The following are excerpts from the *Current Opinions of the Judicial Council of the American Medical Association*, (1989).

**7.01 Records of Physicians: Availability of Information to Other Physicians**—The interest of the patient is paramount in the practice of medicine, and everything that can reasonably and lawfully be done to serve that interest must be done by all physicians who have served or are serving the patient. A physician who formerly treated a patient should not refuse for any reason to make his records of that patient promptly available on request to another physician presently treating the patient. Proper authorization for the use of records must be granted by the patient. Medical records should not be withheld because of an unpaid bill for medical services.

**7.02 Records of Physicians: Information and Patients**—Notes made in treating a patient are primarily for the physician's own use and constitute his personal property. However, on request of the patient a physician should provide a copy or a summary of the

record to the patient or to another physician, an attorney, or other person designated by the patient.

Several states have enacted statutes that authorize patient access to medical records. These statutes vary in scope and mechanism for permitting patients to review or copy medical records. Access to mental health records, particularly, may be limited by statute or regulation. A physician should become familiar with the applicable law, rules or regulations on patient access to medical records.

The record is a confidential document involving the physician-patient relationship and should not be communicated to a third party without the patient's prior written consent, unless required by law or to protect the welfare of the individual or the community. Medical reports should not be withheld because of an unpaid bill for medical services. Simplified, routine insurance reimbursement forms should be prepared without charge, but a charge for complex, complicated or multiple reports may be made in conformity with local custom.

patient's written authorization for the release of substance abuse information. This information includes: the name or general description of the program or person permitted to make the disclosure; the name or title of the person or organization to which the disclosure is to be made; the name of the patient; the purpose of the disclosure; how much and what kind of information is to be disclosed; a statement that the consent is subject to revocation at any time except to the extent that action has already been taken in reliance on it; a specification of the date, event, or condition upon which the consent will expire without express revocation (the authorization should be valid no longer than necessary); the date the consent is signed; and the signature of the patient or person authorized to give consent when required for a minor or a patient who is incompetent or deceased. *42 Code of Federal Regulations, Section 2.51(b)*.

In addition, whenever information is disclosed by a facility, it must be accompanied

by the following statement prohibiting re-disclosure:

This information has been disclosed to you from records protected by Federal confidentiality rules (42 CFR Part 2). The Federal rules prohibit you from making any further disclosure of this information unless further disclosure is expressly permitted by the written consent of the person to whom it pertains or as otherwise permitted by 42 CFR Part 2. A general authorization for the release of medical or other information is NOT sufficient for this purpose. The Federal rules restrict any use of the information to criminally investigate or prosecute any alcohol or drug abuse patient. *42 Code of Federal Regulations, Section 2.32*.

## Morbidity and Mortality Studies

Iowa law provides that any person, hospital or other organization may provide informa-

tion, interview reports, statements, memoranda or other data relating to the condition and treatment of any persons to the Iowa Department of Health, the Iowa Medical Society or any of its allied medical societies, the Iowa Society of Osteopathic Physicians and Surgeons or any in-hospital staff committee, to be used in the course of any study for the

purpose of reducing morbidity or mortality. If records are released to these groups for the purpose of such a study, no liability of any kind for damages or other relief can arise or be enforced against any person or organization by reason of having provided such information or material. *Iowa Code, Section 135.40 (1989).*

## Part 2:

# RETAINING MEDICAL RECORDS

**A**N IMPORTANT ASPECT OF MEDICAL record management is record retention. It should be restated that these suggestions are just that—*suggestions*. Each Iowa physician must consider his or her own situation as to the space, time and expense which can be devoted to medical records. The physician's legal counsel should always be included when determining medical record policies.

## Individual Retention Considerations

The care, maintenance and disposition of medical records must be addressed by all physicians. Various factors should be considered: available space, expansion rates, endurance of the paper and folders and storage safety requirements. Microfilm, microfiche or computer storage may warrant consideration. A general suggestion is: *If the preceding considerations are not a problem, retain all records.* There have been no cases where physicians have been faulted for retaining records—only cases where they have *failed* to do so properly.

The primary purpose for retaining medical records is delivering proper patient care. Records should be retained if there is a continuing medical need for them. It must be remembered that a physician's duties do not cease upon the rendering of medical services. Both the patient and the law recognize that making and retaining medical records are part of the services supplied to the patient. As with the medical service itself, the physician must exercise care to maintain the records in a manner that best serves the interest of the patient.

A secondary purpose for retaining medical records is to assist in defense of potential malpractice claims. Under Iowa law, malpractice actions must be commenced within 2 years after the date on which the patient knew or should have known of the injury or death, but in no event more than 6 years after the date of the act, omission or occurrence in question (except in cases in which a foreign object has been unintentionally left in the body). *Iowa Code, Section 614.1(9) (1989).* If the patient dies during the sixth year, the time for commencing an action may be extended until one year after death, thus increasing the potential limitation period to 7 years. *Iowa Code, Section 614.9 (1989).*

A logical period for retaining records would thus be 7 years after the last contact with the patient. Six years can be used if the likelihood of potential claims arising from the one-year extension is thought too remote to warrant the additional one year of record retention. Whether a 6 or 7-year time frame is chosen, it is suggested that 2 months be added to the time to allow receipt of court papers in the event of an "eleventh-hour" court filing.

## Special Retention Factors

Three types of patients pose special problems in retention of medical records—minors, mentally ill patients and patients under experimental treatment or research.

Iowa law extends the period in which a patient may commence legal action for treatment which occurred during minority until his or her nineteenth birthday. *Iowa Code, Section*



614.8(1989). This is true even if the treatment was given in infancy. If the patient dies between his or her eighteenth and nineteenth birthdays, the time for commencing an action may be extended until one year after death, thus increasing the potential limitation period to the patient's twentieth birthday. *Iowa Code, Section 614.9(1989)*. As before, 2 months should be added to allow for receipt of court papers in the event of an eleventh-hour filing.

For minors, then, records should ordinarily be retained until the patient's twentieth (or nineteenth) birthday plus 2 months, or 7 (or 6) years plus 2 months after the physician's last treatment of the patient, *whichever is longer*. In some cases, however, practical considerations may dictate a shorter retention period, as for example, in the case of a patient seen only once at age 3 for a routine and uneventful check-up.

Mentally ill persons are also provided an extended period of limitations in which to commence a legal action. They are permitted to commence an action at any time within one year after they cease to be disabled, or within the normal 6-year limitations period, whichever last occurs. *Iowa Code, Section 614.8(1989)*. A "mentally ill person" is broadly defined by statute to include mental retardates, psychotic persons, severely depressed persons and persons of unsound mind. *Iowa Code, Section 4.1(6) (1989)*.

The safest policy is to retain records for extended periods of time if a patient is, or may be, mentally ill, particularly if there is a possibility of future legal action. In such cases records should be retained for one year plus 2 months after the patient dies or otherwise clearly ceases to be disabled, or 7 (or 6) years plus 2 months after the physician last treated the patient, *whichever is longer*.

### **Experimental Medical Services**

A final area presenting particular problems concerns patients who have been provided unique, experimental or innovative medical services. In the 1930s, some hospitals and physicians routinely provided head and neck radiation to their patients. In the 1970s, law-

suits were filed alleging that the hospitals and physicians had negligently increased patient susceptibility to thyroid cancer. The availability of records would have greatly aided in defense of these cases. Modern advancements in medical technology provide further examples of situations where side effects from a treatment may not be recognized for many years after the treatment has ceased.

Although the present 6-year statute of limitations for malpractice suits in Iowa would appear to bar such claims, it cannot safely be predicted what the state of the law will be in 20 or 30 years. In addition, there may well be medical reasons for retaining such records for longer than normal periods after the last treatment of the patient. Based on the foregoing, one authority suggests retaining medical records involving innovative or experimental patient care for at least 75 years. *II-A Hospital Law Manual, Medical Records Section 1-3 at 7 (1986)*.

### **Method of Destroying Records**

Once it is no longer necessary to retain a set of patient records, the records must be destroyed in a manner which protects their confidentiality. The method of medical records destruction is not controlled by statute in Iowa. However, shredding or burning (where permitted) are probably the best means. Procedures should be established in each office describing the manner of destruction and these procedures should be uniformly applied. A notice should be maintained in the file identifying the records that were destroyed and stating the date of destruction, the method of destruction, the name of the individual who performed the destruction and the reason for the destruction (e.g., "Eight years since patient last seen. No further need for retention of these records.").

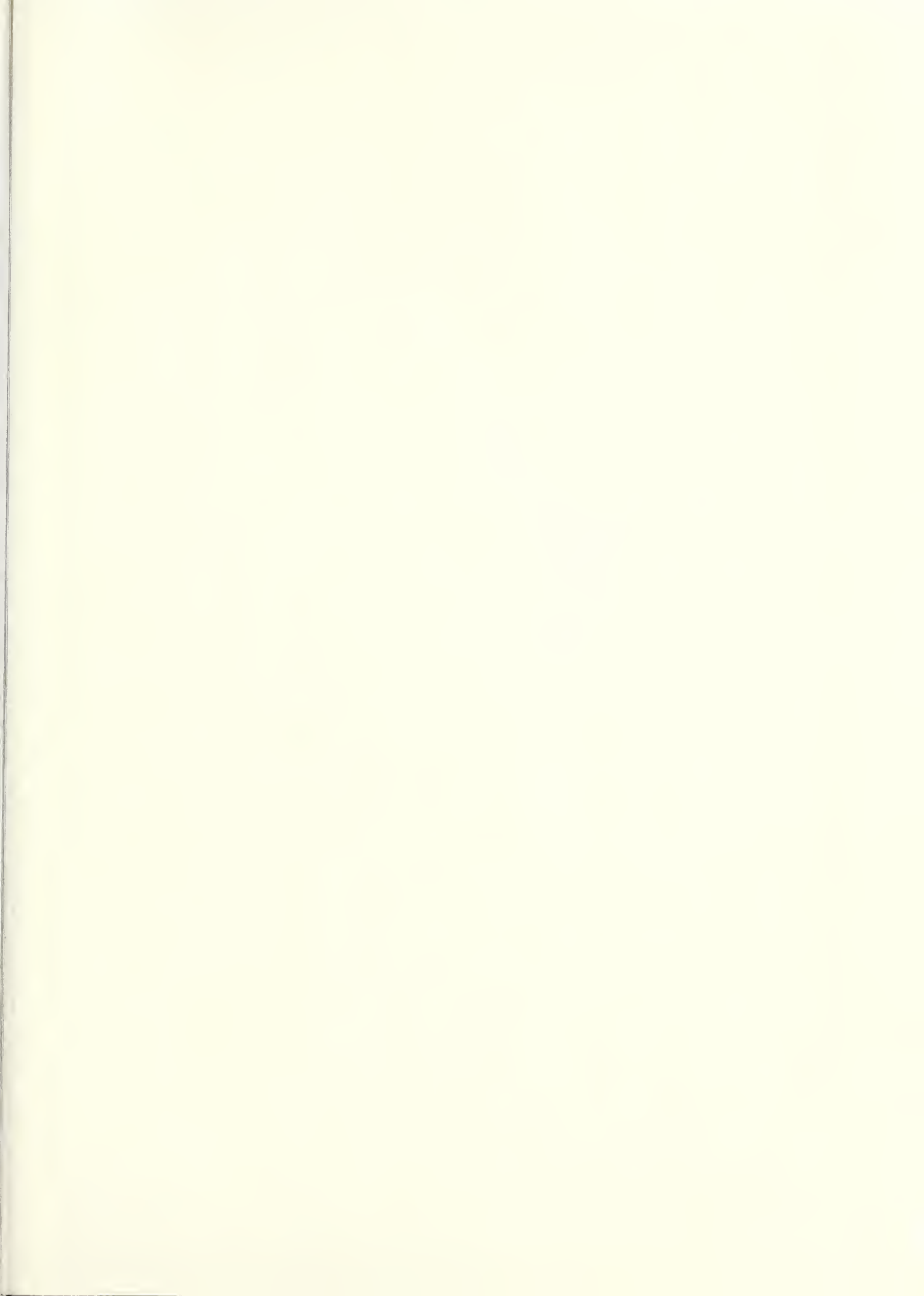
### **Summary Comment**

It is not possible in a short discussion of medical records policy to cover every contingency that might arise. The physician is encouraged to seek legal advice in questionable situations.











NOT TO BE REPRODUCED

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